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May 22, 2014

**VIA ECF AND HAND DELIVERY**

The Honorable Katherine B. Forrest
United States District Court
Southern District of New York
500 Pearl Street
New York, New York 10007-1312

Re: *In re Aluminum Warehousing Antitrust Litig.*, No. 1:13-md-02481-KBF-RLE

Dear Judge Forrest:

I represent the London Metal Exchange ("the LME") in the above-captioned litigation and write on behalf of all defendants regarding the agenda that the Court asked the parties to submit in connection with the upcoming May 28, 2014 tutorial.

Defendants intend to make a consolidated presentation in two parts. First, an employee of the LME will address the Court's questions as they relate to the nature, role and purpose of the LME and the financial market that it regulates.[1] Second, counsel for Goldman Sachs and Metro will address the aspects of the Court's questions that relate to the warehousing of aluminum. Defendants anticipate that each part of their presentation will take approximately 90 minutes, for a total of three hours.

Defendants propose that we make our presentation to the Court first, followed by the plaintiffs' presentation, because the operation of defendants' businesses are at the heart of the complaints and defendants are in a better position to describe their own operations. We met and conferred with plaintiffs about this proposal and they did not agree.

Finally, at the April 25 hearing, the Court invited the parties to submit ordinary course documents in advance of the tutorial that might assist the Court in understanding the issues in this case. Enclosed is a copy of the November 2013 Summary Public Report of the LME Warehousing Consultation. Beginning in July 2013, before plaintiffs filed their complaints, the LME embarked on another formal consultation process (it had done several previously) about

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[1] As the LME advised the Court at the April 25th hearing, its employee is appearing without waiver of the LME's defense that it is immune from liability under the Foreign Sovereign Immunities Act, consistent with its pending motion to dismiss on that subject.

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proposed increases to the minimum load-out rules that are the subject of plaintiffs' complaints. This report summarizes the results of that consultation, including describing the historical events that led up to the consultation and the operation of the financial and physical markets.

Respectfully submitted,

*/s/ Margaret M. Zwisler*
Margaret M. Zwisler

Enclosures

cc: All Counsel of Record (via ECF)

LONDON METAL EXCHANGE

SUMMARY PUBLIC REPORT OF THE

# LME WAREHOUSING CONSULTATION

PURSUANT TO LME NOTICE 13/208 : A201 : W076

NOVEMBER 2013

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# 1. EXECUTIVE SUMMARY

This document (the "Report") constitutes the summary public report of the LME's consultation on warehousing (the "Consultation"), which was announced to the market via LME Notice 13/208 : A201 : W076 (the "Consultation Notice"). In particular, the Consultation Notice requested market views on the Linked Load-In / Load-Out Proposal (the "Proposal" or "Rule"), as well as broader market views on the subject of the LME's warehousing network.

**Factual background**

The Report first (Section 2) sets out the operation of the LME's physical network, including the role of warrants, warehouses and physical delivery. The LME contract has been developed over a long period, and particularly to optimise the physical settlement model which underpins price convergence. While current events have raised concerns around the operation of LME-licensed warehouses, this Report affirms the crucial role that warehouses play in maintaining the utility and relevance of the LME contract.

Section 3 provides a review of recent developments, including user concerns in respect of queues and premiums, and historical action taken by the LME to address these issues.

**Conduct of the Consultation**

Over the course of the Consultation, the LME has held meetings with every market participant who has so requested, resulting in a deep and productive engagement across the global metals industry. Additionally, 33 market participants (of which several were industry groups, representing a larger number of underlying members) chose to submit written responses to the Consultation.

This Report has given the greatest possible focus to both written and oral responses received. As such, the Executive is confident that every relevant action has now been taken to understand, analyse and suggest policy to the Board in respect of this topic.

Section 4 outlines in full the form and conduct of the Consultation, including the Linked Load-In Load-Out Proposal presented therein. In particular (Section 4.4), categories of respondent are identified, including the economic drivers which will cause each category to espouse certain views. Opinion in the market is characterised by a clear split between producers and operators of warehouses with queues (who both view themselves as economically benefitting from the warehouse queues and the premiums thus arising) against consumers (who believe that the existence of the premium creates logistical and economic burdens in their metal sourcing operations) and warehouses without queues (who feel that their ability to attract metal storage business is impacted by competing against warehouses with queues).

**Operation of the market**

Section 5 presents an economic model of the global metals market, focusing on the role of the LME and LME-approved warehouses. While this sets out the view of the LME Executive, the conclusions presented have been discussed with market participants during the course of the Consultation, and this is hence believed to represent a comprehensive analysis, on the basis of which policy decisions can be formed.

This Report concludes that the effect of queues is to create a discount between the free market price of metal, and the value of an LME warrant in a warehouse with queues. By extension, this causes the LME price to trade at a discount to the free metal price. This is then observed by the market as the free market price of metal trading at a premium to the reported LME price. Although there will always be a premium due to the "in-warehouse" nature of the LME contract (requiring, for example, the payment of a load-out charge to convert an LME warrant into free metal), the effect of the queues is to increase this premium as a proportion of the "all-in" free metal price.

While the Report does not, therefore, conclude that there exists economic or market failure, the Consultation has clearly indicated that the existence of the premium creates difficulties for the metals community in respect of both discovery of the "all-in" price, and effective hedging of that price. Accordingly, this Report concludes that it is appropriate to take action to address these issues.

**Consultation feedback**

The core feedback from the Consultation is presented in Section 6. Given the significant divergence of views, the LME has overlaid the responses with an analytical framework to facilitate the creation of a traceability matrix to track the core messages arising from the various written feedback received. Additionally, views expressed during meetings have been incorporated into the commentary in Section 6.

In summary, respondents universally believe that there exists an issue in respect of the current arrangements. A number of respondents (primarily in the aluminium smelting industry) assert that the problems are not queue-related, and have instead suggested a set of alternative measures, centring around transparency, representation and premium hedging solutions.

Amongst those respondents believing that the issues are queue-related, there exists in-principle support for the Proposal, although with specific focus on the arbitrary parameters, with many respondents requesting a lower queue threshold and higher rate of queue decay. Comments around unintended consequences have focused primarily on rents, with a more limited set of concerns in respect of lack of warranting capacity and loss of metal from the LME system.

A broad range of alternative measures to target queues has additionally been proposed. The vast majority of such proposals were considered by the Board prior to publication of the Consultation Notice. While it is valid to reconsider such measures on the basis of market feedback, the conclusion is that each bears an attendant set of operational or legal drawbacks.

**Conclusions and decision**

While this Report fully accepts that there may exist other routes to ameliorate the problem (and which are also considered in the Report), the LME considers that since the fundamental role of the queues is to increase premiums, it must follow that the most logical course of action is to address the existence of those queues. This is the core intent of the Proposal, and the Consultation has affirmed this aim.

Furthermore, in the context of the Consultation, no alternative course of action to address queues has been proposed which, in the opinion of the LME, better balances the need to manage queues down within the practical and legal framework under which the LME operates, the logistical constraints of certain warehouse facilities, the equitable right of warehouse operators to recoup the significant investment made in LME facilities, and concerns from producers as to the effects of large quantities of stored metal being discharged into the market over a short period of time.

On the basis of the Consultation and the analysis presented in this Report, the LME Executive laid out its recommendations to the LME Board, which were considered by the Board at its meeting on 25 October 2013. The decisions made by the Board are summarised in Section 7. In summary, the Rule will be implemented with limited logistical adjustments, and has been announced together with a package of parallel measures arising from requests and suggestions made during the Consultation.

# 2. OVERVIEW OF THE LME WARRANT AND WAREHOUSING SYSTEM

## 2.1. LME warrants

### 2.1.1. Role of the LME warrant

LME warrants are bearer documents of possession relating to one specified lot of material[1] in an LME listed warehouse. As such, title to the metal changes with the piece of paper itself. To improve security and to enhance the efficiency of deliveries, all LME warrants – if they are to be used to settle a futures transaction – must be lodged with the LMEsword depository. The Sword system (which began operation in July 1999 before being brought in-house and as renamed LMEsword in 2010) allows clearing members to transfer warrants electronically. Paper warrants still exist but are immobilised at a depository. The only time paper warrants need to be transferred is when metal is placed in, or withdrawn from, a warehouse.

### 2.1.2. LME warrant lifecycle

**Figure 1: LME warrant creation**

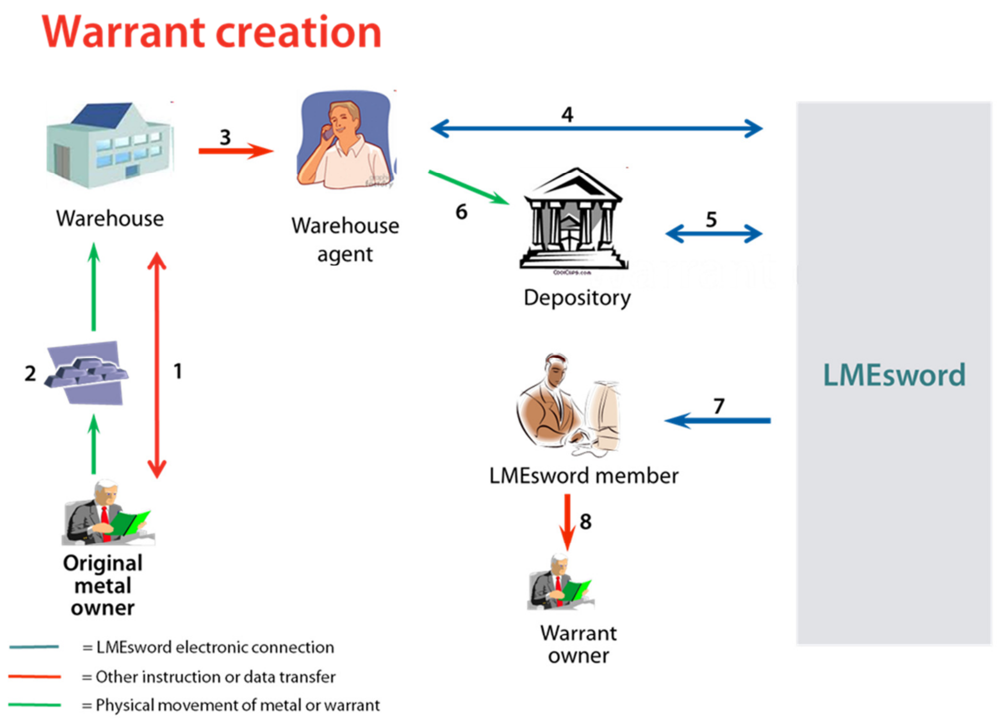


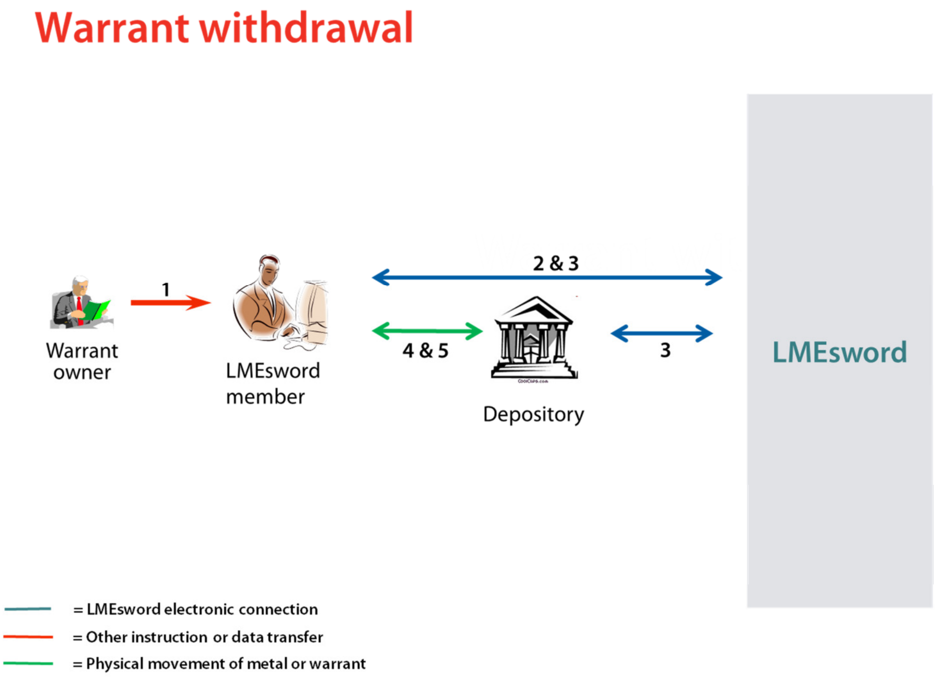
Figure 1 depicts the process of creating an LME warrant. Firstly the metal owner agrees terms with a warehouse company (1) before the metal owner sends metal (2) to the warehouse. The warehouse instructs (3) its London agent of details of warrants to be created; the London agent uses LMEsword to create warrants. (4) The printed warrant is then normally given to the LMEsword member, and (5) that LMEsword member will create a lodge instruction in LMEsword which advises the Depository to expect the warrants, following which (6) the LMEsword member delivers warrants to the Depository. LMEsword advises the LME member that the warrants are in the depository (7) and then finally the LMEsword member allocates (8) the warrants to the account of the client who owns the warrants. It is possible for there to be a delay between step 2 in the process, the physical metal being delivered into a warehouse, and it coming on LME warrant (step 7) which often creates misunderstanding as to how such large tonnages can be put on LME warrant in one day. For example, delivering 50,000 tonnes of aluminum into a warehouse (step 2) may take several weeks in respect of the physical load-in, but putting it on LME warrant (with consequent reflection in the published stock figures) can happen in a day as it is a simple registration process (steps 3 to 7).

---

[1] The size of a lot is defined per metal, e.g. 25 tonnes for aluminium

Due to the nature of LME metal, once in an LME warehouse metal can remain on-warrant and not move for many years with no degradation in quality or form. Over the storage period, the warrant may change hands through electronic transfer of ownership within the LMEsword system but that may not result in the metal leaving the warehouse it is stored in until a given warrantholder makes a request to move that metal. This demand could be for consumption of the metal, or it could be driven by economic drivers such as moving the metal to storage in another location. Ultimately, this decision sits with the metal owner.

**Figure 2: LME warrant withdrawal**

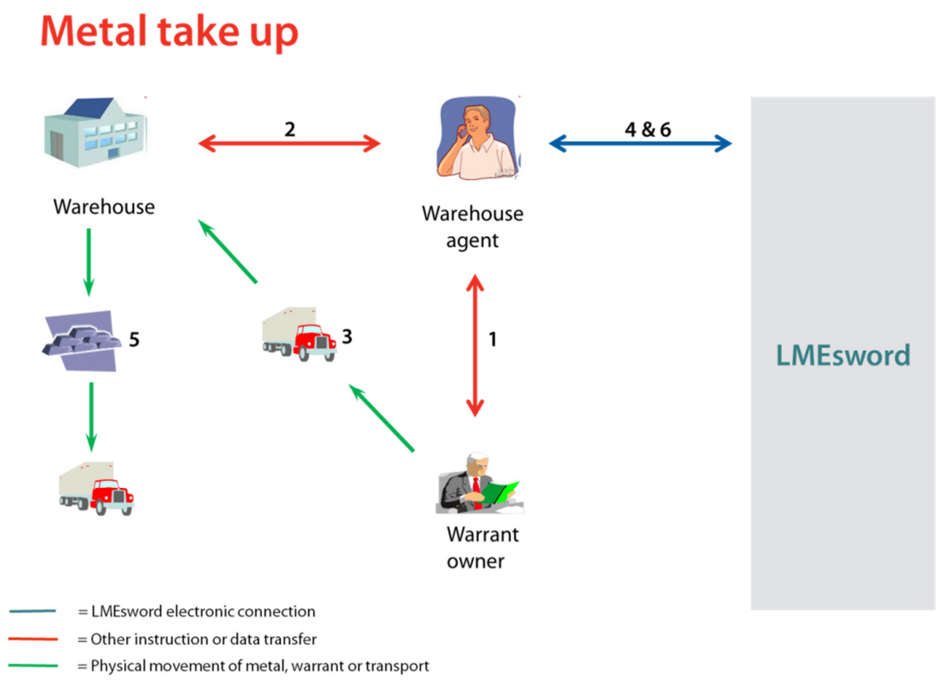

Warrant withdrawal
1
Warrant owner
LMEsword member
2 & 3
4 & 5
3
Depository
LMEsword
= LMEsword electronic connection
= Other instruction or data transfer
= Physical movement of metal or warrant

When demand factors emerge to move the on-warrant metal stored within LME listed warehouses, there are two distinct stages metal owners must complete to obtain their metal. In the first stage (set out in Figure 2), the warrant owner advises (1) their LMEsword member (broker) they wish to withdraw the warrant from the Depository so the broker can enter the withdrawal instruction (2) into LMEsword. LMEsword will then send the broker the security ID and notifies the Depository (3). The LME broker then takes the security ID to the Depository so the Depository can then release the warrant (4 & 5).

The second of the two stages for obtaining metal from an LME listed warehouse (shown in Figure 3) commences when the warrant owner notifies the London agent of the wish to take up the metal (1). The London agent cancels the warrant in LMEsword and advises the warehouse. This action reduces the on-warrant LME stock figures, and increases correspondingly the LME cancelled stock figures (2 & 4). The warrant owner schedules transportation in consultation with warehouse (3). The warehouse removes the metal from the warehouse and loads it onto transport (5). Finally the London agent notifies LMEsword that the metal has been delivered out (6).

In the process described above of taking up LME warrants, the potential formation (or increase) of a queue occurs (3) where metal owners schedule a place in the queue with the warehouse. In order to obtain a scheduled place in the queue warehouses tend to demand full payment of rent to that point in time and delivery-out charges before a scheduled slot is allocated. Only once the process completes (6) does the metal count as part of the load-out rate for that warehouse.

**Figure 3: LME warrant take-up**


Metal take up
Warehouse
2
Warehouse
agent
4 & 6
LMEsword
5
3
1
Warrant
owner
= LMEsword electronic connection
= Other instruction or data transfer
= Physical movement of metal, warrant or transport

### 2.1.3. Rent and FoT on LME warrants

Rent is the charge payable on a specific LME warrant for storage within an LME listed warehouse and is charged on a daily rate. FoT (Free on Truck) rates are essentially delivery-out charges payable by the buyer of metal. The published FoT maximum handling charge is for loading onto a flat bed or curtain shed truck. Deliveries into containers, vans, railcars, ships, barges etc may attract different rates.

The LME does not set rates for rent or the handling of metal. Warehouse operators must set their rents and FoTs annually, and must communicate charges for the next rent year (1 April to 31 March) to the LME by 1 December. These are published to the market three months in advance of the new accrued rents taking effect. Figure 4 tracks the development of rent levels by metal.

Rents are payable annually in arrears by the 31 March, and past rents accrued are the responsibility of the warrant holder on the 31 March each year. If a warrant is transferred during the year the rent must be settled in full between the buyer and the seller, and once again the warrant owner at that time is responsible for past rents accrued. All rent endorsement is carried out within LMEsword which has the functionality for forward endorsement of rents for LME warrants. At the end of the year, warrant holders must approach the warehouse company or its London agent to settle the rent. On receipt by a warehouse or its London agent of any rent payment in respect of a warrant issued by it (whether by the due date or afterwards), such London agent shall issue a Warrant Endorse instruction in LMEsword which will result in the system marking the electronic record of a warrant as "rent paid". This shall allow that warrant to be delivered out of the warehouse if the metal is being taken up or allow it to be delivered into clearing if moving into a new rent year to settle a contract.

Whilst the LME publishes maximum rent and FoT rates, these can often be commercially negotiated between warrant owners and warehouses resulting in rent deals (often a discounted rental rate for a certain tonnage and commitment to storage length).

**Figure 4: Development of average warehouse rent per metal**

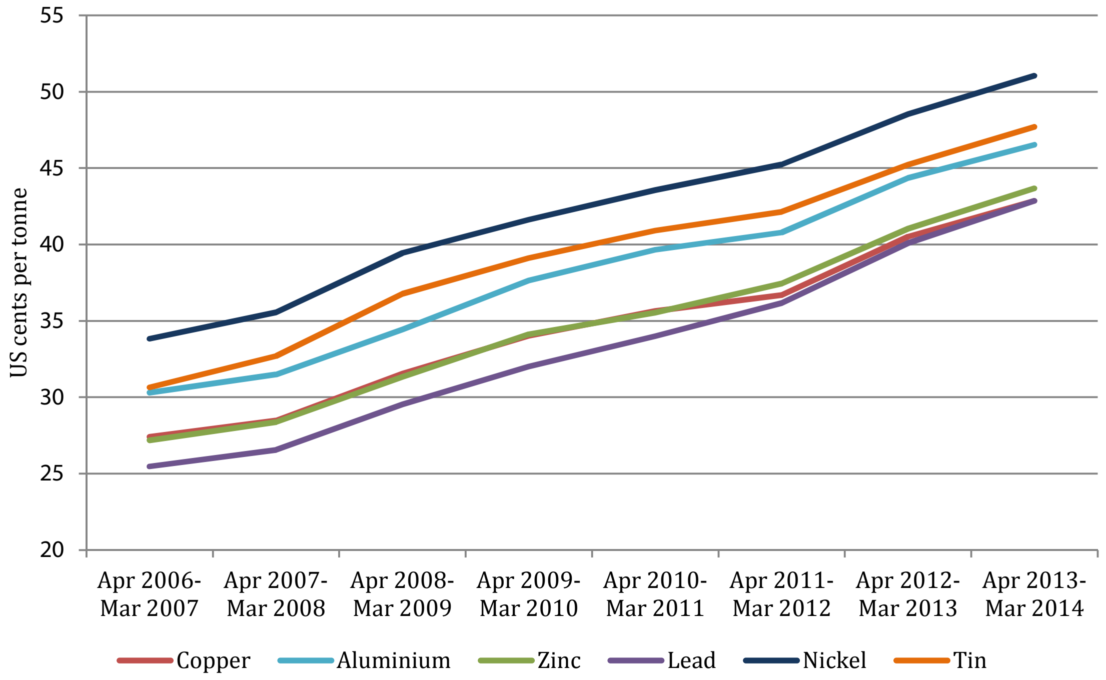
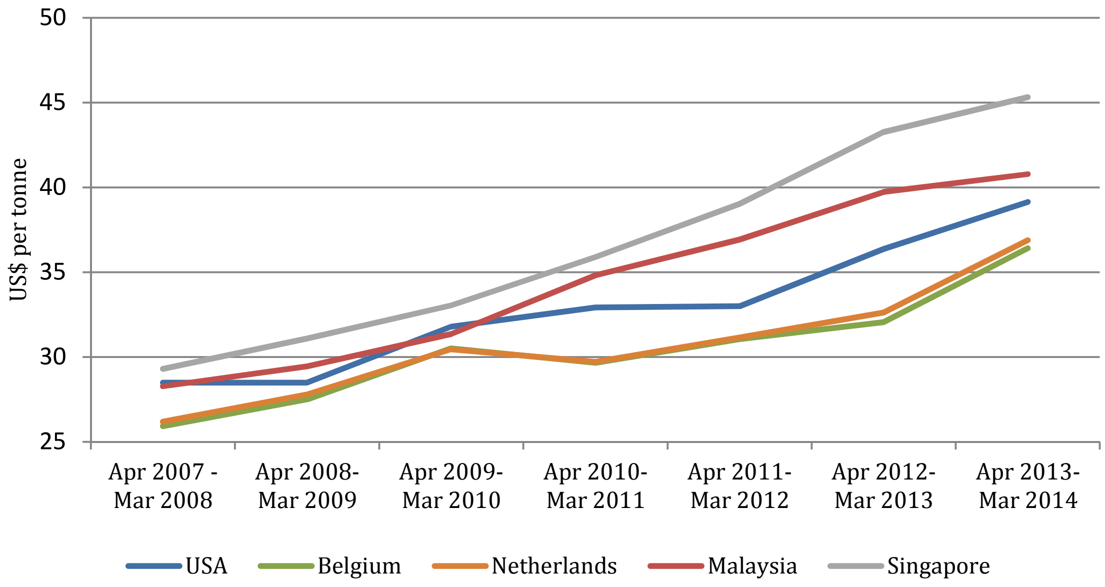

55
50
45
40
35
30
25
20
US cents per tonne
Apr 2006-Mar 2007
Apr 2007-Mar 2008
Apr 2008-Mar 2009
Apr 2009-Mar 2010
Apr 2010-Mar 2011
Apr 2011-Mar 2012
Apr 2012-Mar 2013
Apr 2013-Mar 2014
Copper
Aluminium
Zinc
Lead
Nickel
Tin

**Figure 5: Average FoT rate (converted into USD)**


50
45
40
35
30
25
US$ per tonne
Apr 2007 - Mar 2008
Apr 2008-Mar 2009
Apr 2009-Mar 2010
Apr 2010-Mar 2011
Apr 2011-Mar 2012
Apr 2012-Mar 2013
Apr 2013-Mar 2014
USA
Belgium
Netherlands
Malaysia
Singapore

### 2.1.3.1. LME charges and competition law

As will be seen later in this document, the LME may find it necessary to regulate the rents and FoTs which the warehouses may charge. The LME has been of the view that this may not be consistent with relevant European competition law[2].

[2] As set out in Section 2.3.1, the LME has the power to query the economic basis for charges under the Warehousing Agreement – however, there is no power of capping once a rational economic justification has been provided

The LME last considered the issue together with external legal counsel in 2005, in the context of whether it was permissible to regulate FoT rates by capping them. At that time the LME management decided neither to regulate FoT rates by capping them, nor to raise the matter with DG Comp.

#### 2.1.3.2. In-warehouse vs. FoT contracts

The issue of FoT charges in the LME network is particularly significant because the LME contract is an in-warehouse, rather than an FoT, contract. This means that buyers receiving warrants know that those warrants relate to metal in a warehouse, rather than "free" metal, and that the buyer will need to assume charges in relation to the load-out. As more fully set out in Section 5.4.1, this causes the LME price to trade at a discount to the price of the free metal.

Historically, work has been undertaken by the LME to assess the feasibility of converting to an FoT contract, under which the party loading metal into the warehouse would be required to pre-fund all load-out charges[3]. However, the difficulties of converting "in-flight" contracts and warrants to an FoT basis have historically been viewed as prohibitive.

### 2.1.4. LMEsword, warrant circulation and the ex-cleared warrant market

As set out in Section 2.1.1, the Exchange operates a secure electronic transfer system for LME warrants called LMEsword. The LMEsword system facilitates the transfer of ownership of LME warrants and stock reporting. The function covered by stock reporting enables the LME to see the creation of a warrant, and the cancellation of a warrant. Once a warrant has been cancelled, the owner has the ability in some circumstances to re-warrant that metal within the same warehouse company. However, in the vast majority of cases, the underlying metal is subsequently delivered out, and the warrant is reported as delivered out in LMEsword.

Metal that has been on-warrant in one warehouse company may end up on-warrant in another warehouse company – however, a completely new warrant will need to be issued by that company. There is no visible tracking as the new warehouse company will store the metal as they see fit and will not receive the metal in the same format as that in which it was warranted at the previous company. This is particularly true in the US where truck weights generally only allow for 20 tonnes to be moved, whereas the majority of LME warrants are 25 tonnes, and therefore warehouse companies will split warrants when delivering out. While it may theoretically be possible to attempt to track the re-emergence of metal in a new warrant by reference to underlying metal serial numbers, this would require such significant effort that it would represent an impractical task in practice.

One of the functions of LMEsword is to facilitate the transfer of warrants, including ex-cleared transfers. An ex-cleared transfer is where one party requires a specific warrant, e.g. a specific brand or location. The system will allow an electronic transfer between two parties without the necessity of going through the clearinghouse; however LMEsword does not show or facilitate any pricing arrangements.

### 2.1.5. Warrant auditing

The purpose of the audit programme is primarily to ensure that metal is placed on-warrant in accordance with the special contract rules relating to each particular metal, to ensure that listed warehouses remain in the same condition and with the same security as when listed, and to ensure that warehouse companies are correctly reporting deliveries in, cancellations and deliveries out.

For both deliveries in and cancellations, the main requirement is to ensure that there exists a match between an instruction and the corresponding metal movement reported by the warehouse company. For delivery out, a documentation check (generally a truck receipt or a bill of lading) is made to ensure that a cargo movement has taken place.

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[3] See "A Review of the possible consequences of a change in contract terms from in warehouse to FoT basis, with respect to all metals traded on the London Metal Exchange", February 2007. Note also that certain historical LME contracts (e.g. plastics) have been constructed on an FoT basis

Until 2013, a 100% stock count (ensuring the presence of the physical metal relating to every warrant in the LME system) was carried annually out by a third party on behalf of the LME. It has been decided to replace this with a 10% stock count to be carried out internally.

#### 2.1.6. LME economics

The LME receives a stock levy from warehouse companies. The LME levy charged is 1.10 per cent of the daily rent collectable on LME warrants. This calculation will be the total reported tonnage (cancelled plus live warrants) on each day, multiplied by the published rent rate for each warehouse, multiplied by 1.10 percent. For the avoidance of doubt, even if a rent deal has been entered into between the warehouse company and the metal owner, the LME levy is still computed on the warehouse's published headline rent.

Additionally there are charges of an annual warehouse listing fee which is US$5,000 per warehouse company, per good delivery point and a listing fee for additional shed(s) which is US$4,000.

#### 2.1.7. Off-LME storage

In order for an LME warrant to be issued, metal must already be residing in the listed warehouse. Therefore metal which has not yet been placed on-warrant or may never be placed on-warrant will be stored alongside metal which is on-warrant or was previously on-warrant and is in cancelled status. The metal can be identical in storage patterns to metal which is on-warrant but the proposed storage approach is a matter for the individual warehouse company.

More generally, significant quantities of metal are stored away from the LME system (primarily in an unwarranted form, with some metal warranted pursuant to the rules of other Exchanges).

By way of example, Macquarie Research estimates total current aluminium stock to be 11.9 million tonnes (October 2013 *Commodities Research).* This includes both LME and off exchange metal. The LME currently has 5.4 million tonnes of aluminium on-warrant, which implies that an estimated 6.5 million tonnes of aluminium is being held off warrant.

#### 2.1.8. Differences between warrants

The LME has within its approved warehouse system over 700 warehouse sheds operated by 63 warehouse companies situated in 40 different locations within 15 different countries. Within this warehousing network can be stored 570 LME approved metal brands which come in 28 different product shapes.

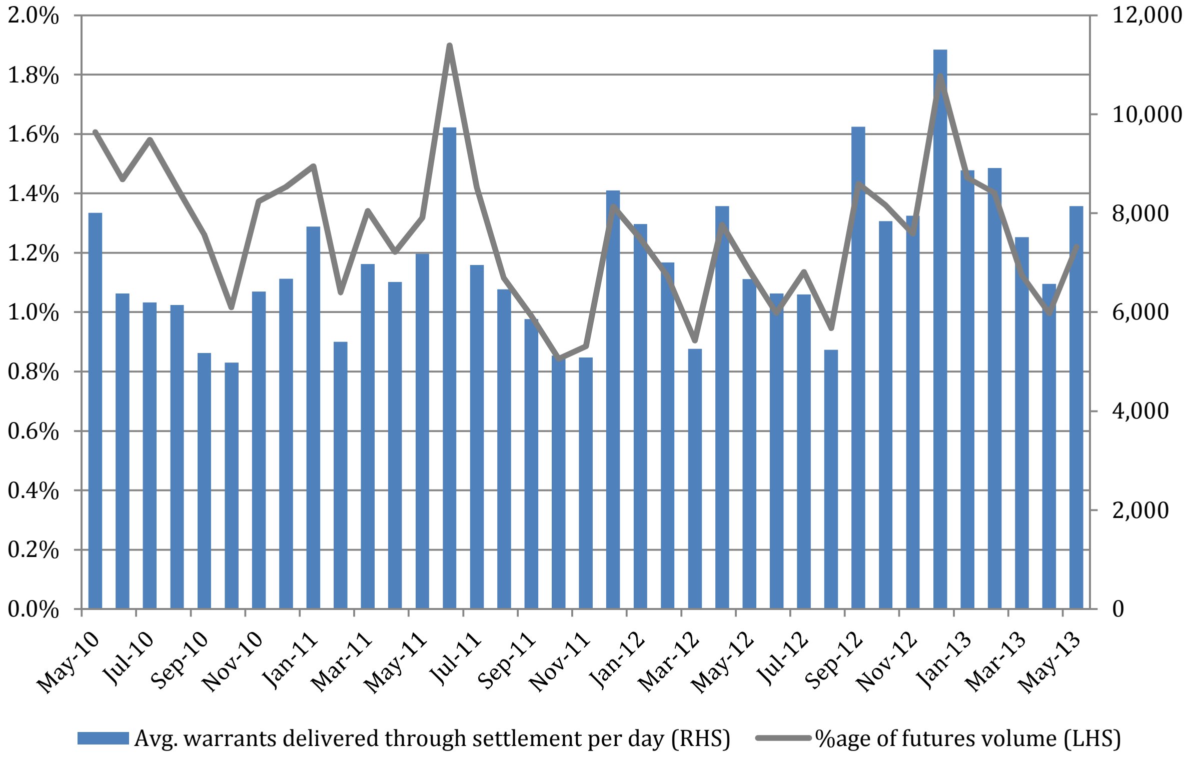
As it is the seller who dictates the brand and location of the warrant delivered into the clearing system, a buyer could well receive warrants relating to metal of a shape, and in a location, he does not want. As a result, there operates an off-exchange market in which warrants can be swapped. A buyer who wishes to swap warrants relating to one location or shape, for warrants of another location or shape, may have to pay a premium or might receive a payment, depending on the supply and demand for the particular warrants.

The trading of warrants is a daily activity carried out by brokers on behalf of their customers. It is not an LME-controlled activity and is not carried out in an open market place, which means that any warrant premiums are more difficult to track and hedge.

### 2.2. Role of warrants in delivery

There are two ways to close an LME position. One is to make or take physical delivery (i.e. the exchange of warrants), the other is to undertake an equal and opposite position and effect delivery by offset. On the LME, the vast majority of contracts settle by offset (only 1.2% of trades in Jan-Sept 2013 settled by physical delivery) – most customers crystallising their profits/losses in a cash form. Nonetheless, in 2012, over 4.5 million tonnes of metal was delivered into LME warehouses, and 4 million tonnes was delivered out.

**Figure 6: Physical delivery of LME contracts**


2.0%
1.8%
1.6%
1.4%
1.2%
1.0%
0.8%
0.6%
0.4%
0.2%
0.0%
12,000
10,000
8,000
6,000
4,000
2,000
0
May-10
Jul-10
Sep-10
Nov-10
Jan-11
Mar-11
May-11
Jul-11
Sep-11
Nov-11
Jan-12
Mar-12
May-12
Jul-12
Sep-12
Nov-12
Jan-13
Mar-13
May-13
Avg. warrants delivered through settlement per day (RHS)
%age of futures volume (LHS)

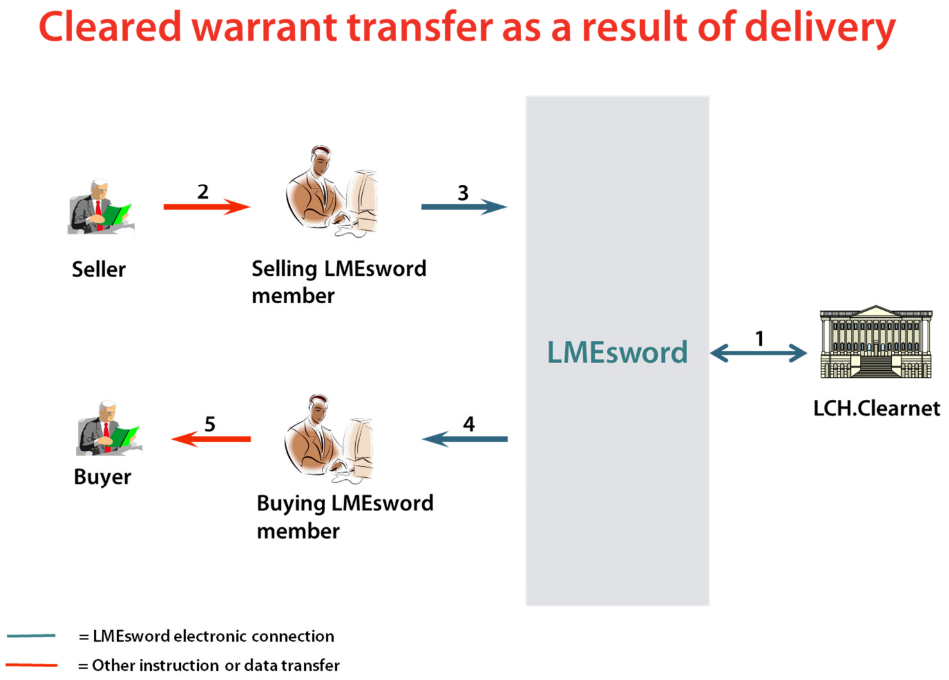
If contracts are not offset before the prompt date (a process known as position netting), then a long position holder will be obligated to buy physical metal, whilst a short position holder will be obligated to deliver metal. Delivery is made by the transfer of warrants and cash in a process controlled by the clearinghouse[4].

Delivery through clearing is shown in Figure 7. In (1), LCH.Clearnet advises buying and selling LMEsword members (brokers) of their delivery quantities for that particular prompt date. Next the selling client (2) advises which warrants it wishes to deliver before the selling broker allocates warrants (3) to LCH.Clearnet in LMEsword. The final stage of the process sees LCH.Clearnet randomly allocate warrants to buying brokers (4), and the buying broker allocates warrants (5) to the buying client. The warrant allocation process allocates warrants from the seller to the buyer in a randomised way to ensure fairness and integrity in the delivery system. The key steps in this randomisation process are as follows:

i. Buyers for each metal will be sorted in LMEsword participant number sequence, with client and house delivery positions being considered separately, the "buyers sequence".
ii. LMEsword will randomly pick a buyer from which to commence allocating warrants.
iii. The warrants received by the Clearing House from the sellers are sorted by metal, location and warrant number, the "ordered list".
iv. Commencing from the selected buyer LMEsword will begin allocating warrants in batches of fifty warrants.
v. If the buyer is expecting to receive more than fifty warrants, the first fifty warrants from the ordered list will be allocated to that buyer and the process will move on to the next buyer in the buyers sequence.
vi. If the buyer is expecting less than fifty warrants, the whole amount will be allocated to that buyer and the process will move on to the next buyer.
vii. The process will continue until all of the warrants received by the Clearing House have been allocated.

[4] Currently LCH.Clearnet, and to be transitioned to LME Clear

**Figure 7: Process of cleared warrant transfer**


Cleared warrant transfer as a result of delivery
Seller
2
Selling LMEsword member
3
LMEsword
1
LCH.Clearnet
Buyer
5
4
Buying LMEsword member
= LMEsword electronic connection
= Other instruction or data transfer

As the LME approves a wide range of warehouses and a large number of different shapes and brands of metal, the seller is in a potentially powerful position. This is because the right to choose which precise location and the type of metal to be delivered are vested in the seller. This results in the market concept of the "worst warrant" being delivered. The concept of the "worst warrant" refers to the personal perspective of the seller and which warrant they deem to be least valuable. Consequently, the buyer could end up receiving metal of a shape and in a location he does not want.

## 2.3. The LME Warehousing Agreement

The relationship between LME warehouses and the LME is governed by the Warehousing Agreement and various ancillary documents:

i. Terms and Conditions Applicable to all LME Listed Warehouse Companies
ii. Schedule A: General Information of Application Company to be Listed
iii. LME Policy Regarding the Approval of Warehouses
iv. LME Policy Regarding the Approval of Good Delivery Points

### 2.3.1. Key terms of the Agreement

Key clauses of the Terms and Conditions Applicable to all LME Listed Warehouse Companies which are relevant for the purposes of this Report include:

i. Clause 1.5.2 – A warehouse may not deal directly or indirectly in LME contracts, and is required to comply with the requirements set out in LME Notice 11/334 relating to "information barriers" between members or other trading companies and warehouse companies, in order to prevent the misuse of confidential and price sensitive information (see also clause 9.13). The requirements in relation to information barriers were first introduced in 1998, but were reinforced most recently in 2011 with a new requirement for warehouse companies to engage a third party to verify the effectiveness of such information barriers. The first reports from third party assurance firms were received by the LME earlier this year relating to the period 1 April to 31 December 2012.

ii. Clause 4.2 – warehouses are required to deliver metal out at the minimum rates stipulated by the LME from time to time. Failure to comply with the requirements in relation to load out rates would constitute a breach of the warehouse agreement.

iii. Clause 5.1.2 – rent on metal under warrant accrues on a daily basis and rent is payable annually as at 31 March each year, or upon cancellation of a warrant (whichever is the sooner).

iv. Clause 5.1.4 – each warehouse must fix its rent rates and FoT charges annually in respect of each 12 month period commencing 1 April by notification to the LME not later than 1 December in the preceding year. At any time within 10 business days of receiving such notification, the LME may, at its discretion, require the warehouse to provide within 10 business days, a comprehensive, written explanation of the economic circumstances which, in the view of the warehouse, necessitate the change in its rent rates and/or FoT charges. The LME shall publish the warehouse's rent rates and FoT charges by 31 December provided that no change in rent rates or FoT charges shall become effective until the following 1 April.

v. Clause 6.3.1 – each warehouse company must report stocks to the LME on a daily basis.

vi. Clause 7.5.1 – warehouse companies are required to comply with all applicable legislation.

vii. Clause 9.3.1 the proper functioning of the market through the liquidity and elasticity of stocks of metal under warrant should not be artificially or otherwise constrained by warehouses giving exceptional inducements or imposing unreasonable charges for depositing or withdrawing metals, nor by warehouses delaying unreasonably the receipt or despatch of metal, save where unavoidable due to force majeure. The Exchange has the right to investigate warehouse companies' charges (clause 9.3.2).

### 2.3.2. Good delivery locations

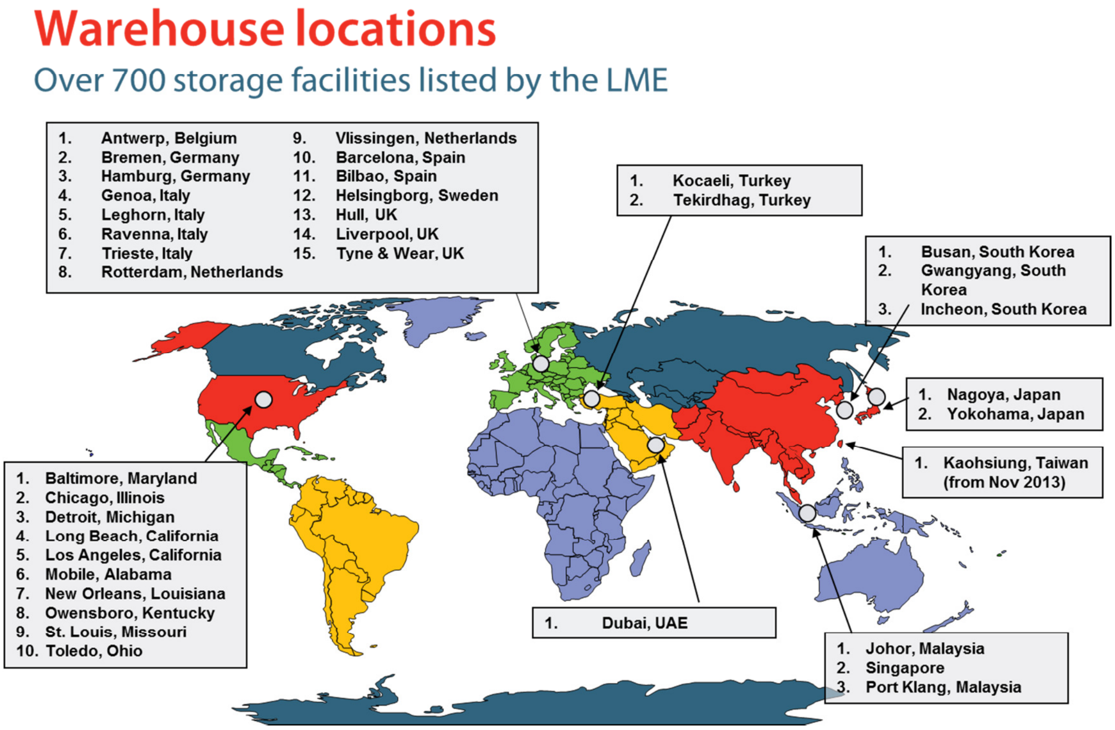
The Board of The London Metal Exchange has traditionally approved the listing of new locations and de-listing of current locations in accordance with the LME Policy for the Approval of Good Delivery Points. The Policy and guidelines were first consolidated and published in November 2003 (effective February 2004), and amended in July 2011. An application for approval, or proposal for delisting, would first be considered by the Executive and the relevant metals committees and the Warehousing Committee, before being presented to the Board for final consideration and approval.

The terms of reference for each of the metals committees include a provision to the effect that one of the purposes of the committee is to "recommend the addition or deletion of good delivery points in respect of their particular contract". The terms of reference of the Warehousing Committee also state that the Committee should review "the consistency of application by the Exchange of the Exchange's location policy" and should assist "the Executive, as appropriate, with the formation of working groups to advise EXCOM on warehousing issues (e.g. structure of warehouse agreement, location policy, capacity constraints)". The Policy for the Approval of Good Delivery Points states that "should an application be accepted in principle by the warehousing and relevant metals committees and subsequently ratified by the Board of directors of the Exchange, commencement of LME approved operations would not take place for a minimum of 90 days after Board approval and would be subject to satisfactory warehouse companies and warehouses being similarly approved". In practice, the metals committees consider the suitability of a location for a particular metal, and the Warehousing Committee considers the applicability of the Policy for Approval of Good Delivery Points to a particular location. For example, to list or delist a good delivery point for Copper and Nickel, a recommendation would be sought from both the Copper Committee and the Nickel Committee. The views of the Warehousing Committee would also generally be sought, or, where the application of the Policy for Approval of Good Delivery Points is straightforward, the Warehousing Committee would merely be notified of the proposal.

In July 2013, the Board resolved to delegate authority for the approval of good delivery points and delisting of existing delivery points to EXCOM. The terms of reference of EXCOM were amended to state that "the Board has delegated to EXCOM authority to approve matters relating to recommendations made in respect of Good Delivery Points in accordance with the LME Policy and Guidelines Regarding the Approval of Good Delivery Points as such policy is amended by the Board from time to time." However, matters of strategic importance may still be referred to the Board of the LME.

The initiative as to a recommendation can come from the Executive, or individual metals committees. For example, in 2012 the Copper committee recommended that Vlissingen be de-listed as a good delivery location for the Copper contract. In 2013, the Copper committee reviewed their recommendation and subsequently recommended lifting of the suspension of Vlissingen.

**Figure 8: LME global good delivery locations**


Warehouse locations
Over 700 storage facilities listed by the LME
1. Antwerp, Belgium
2. Bremen, Germany
3. Hamburg, Germany
4. Genoa, Italy
5. Leghorn, Italy
6. Ravenna, Italy
7. Trieste, Italy
8. Rotterdam, Netherlands
9. Vlissingen, Netherlands
10. Barcelona, Spain
11. Bilbao, Spain
12. Helsingborg, Sweden
13. Hull, UK
14. Liverpool, UK
15. Tyne & Wear, UK
1. Kocaeli, Turkey
2. Tekirdhag, Turkey
1. Busan, South Korea
2. Gwangyang, South Korea
3. Incheon, South Korea
1. Nagoya, Japan
2. Yokohama, Japan
1. Kaohsiung, Taiwan (from Nov 2013)
1. Baltimore, Maryland
2. Chicago, Illinois
3. Detroit, Michigan
4. Long Beach, California
5. Los Angeles, California
6. Mobile, Alabama
7. New Orleans, Louisiana
8. Owensboro, Kentucky
9. St. Louis, Missouri
10. Toledo, Ohio
1. Dubai, UAE
1. Johor, Malaysia
2. Singapore
3. Port Klang, Malaysia

## 2.3.3. Approved warehousing companies

A warehousing company wishing to operate LME-approved facilities must enter into the Warehousing Agreement per Section 2.3. As part of this process, the LME will form a view as to the suitability of the warehousing company per the criteria laid down in the Terms and Conditions.

It is a rigorous process for a warehouse company to be LME approved to store LME material. The warehouse companies are required to show expertise in dealing with metals, which is specifically technical knowledge, amongst other requirements. It would take approximately six months or more for a warehouse to be approved.

Applications for new warehouse companies are first considered by the Executive and then presented to EXCOM for final approval. Until December 2006, warehouse company applications were first presented to the Warehousing Committee, for onward recommendation to EXCOM. However, it should be noted that, during this period of time, warehousing companies were not full members of the Warehousing Committee, and consideration of new warehouse company applications were carried out without warehousing companies present. With effect from 1 January 2007, new warehouse company application ceased to be presented to the Warehousing Committee.

### 2.3.3.1. Ownership and information barriers

A feature of the LME warehousing market (as set out in Figure 9) is ownership links between warehousing operators and trading houses. The Warehousing Agreement contains limitations on a warehousing operator engaging in trading (as set out in Section 2.3.1). Aside from this, the LME does not attempt to control which entities own LME warehouses (and to do so may risk challenge on the basis on competition law). However, the LME does have provisions and procedures to establish and enforce strict information barriers between Warehouse Companies that are connected with Members or have a close connection with any company which enters into LME Contracts or trades metal that is deliverable against an LME Contract.

In order to ensure that the information barriers between Related Warehouse Companies and Trading Companies are effective, the Exchange further strengthened its information barrier requirements in Notice 11/334 in 2011 by introducing a requirement for Related Warehouse Companies to engage a Practitioner to assure that the information barriers it has in place are compliant with the requirements set out in that Notice. Such assurance must be carried out in accordance with the International Standard on Assurance Engagement 3000: Assurance Engagements other than Audits or Reviews of Historical Information, issued by the International Auditing & Assurance Standards Board or such other standard as is notified by the Exchange from time-to-time (the "Standard"). This is an annual process that can be undertaken by the Related Warehouse Company's existing auditors or any other person who meets the requirements set out in that Notice.

### 2.3.4. Approved warehouse facilities

Once approved as a warehouse operator per Section 2.3.3, then individual warehouse buildings ("sheds") can be licensed by the LME[5]. In November 2003, the LME introduced the LME Policy Regarding the Approval of Warehouses. This set out the criteria which the LME will apply both when licensing a warehouse operator's first shed in a given good delivery location (at which point that operator becomes an LME warehouse operator in the location), and when licensing further sheds for an operator already present in that good delivery location.

It is important to note that LME applies no subjective judgment in respect of new approvals. To the extent that logistical requirements are met, the LME does not reject new applications. This factor, combined with the availability of suitable sheds on attractive lease terms, drives significant elasticity in the number of LME-licensed sheds, as shown in Figure 10.

Applications for new sheds are first considered by the Executive and then presented to EXCOM for final approval. Prior to the formation of EXCOM, all applications were presented to the warehousing committee for their final approval. With the creation of EXCOM, the process changed with all applications for new sheds being presented to the warehousing committee for their recommendation for final approval by EXCOM[6]. The warehousing committee ceased consideration of applications for new sheds commencing January 2007.

#### 2.3.4.1. Load-out requirements

As part of the LME Policy Regarding the Approval of Warehouses, the LME introduced definitive load out requirements, to give clear guidance as to the minimum load-out expected of each warehouse company in each location. These rules have continued to develop, as set out in Section 3.5.

For the avoidance of doubt, although the approval of facilities is carried out on a per-shed basis, the load-out requirements apply in respect of the aggregated LME sheds run by a particular operator in a particular location.

### 2.3.5. LME enforcement powers

Failure by a warehouse company to comply with the requirements of the Warehousing Agreement would constitute a breach of that agreement. The LME has the power under the Warehousing Agreement (and the disciplinary procedures, which are incorporated into the Warehousing Agreement) to take disciplinary action against warehouses. The LME's powers include: (i) a warning or reprimand, (ii) a fine, (iii) a requirement to comply with such terms and conditions as appropriate, (iv) the withdrawal, either temporarily or permanently, of listed warehouse status, and (v) such other penalty as the warehouse disciplinary committee think fit, including a fine or other sanction conditional upon the warehouse not remedying a default within a given period.

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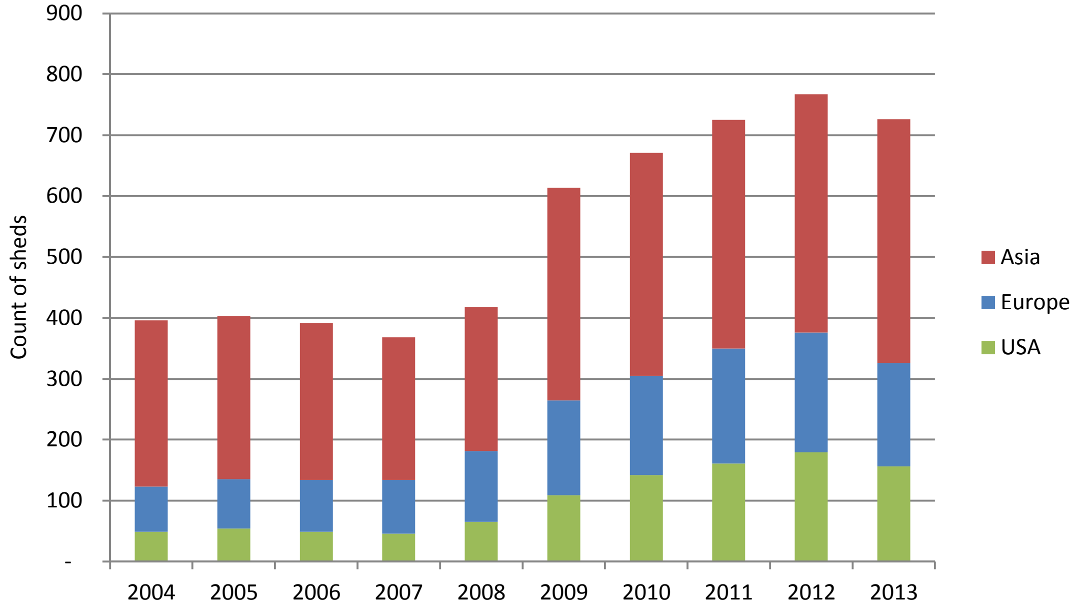
[5] In general, once approved by the LME, a warehouse company can apply for sheds in multiple LME good delivery locations. However, due to local tax law, it may be necessary to constitute a new legal entity for a particular jurisdiction, in which case such entity would need to be approved as a new warehouse company pursuant to Section 2.3.3

[6] Per Section 2.3.3, at this time, the Warehousing Committee did not include warehouse companies as full members

**Figure 9: LME warehouse operators and their owners**

| Warehouse Group | Ownership | Date |
|---|---|---|
| Bartoli | N/A (not by a trading company) | |
| BLG | N/A (not by a trading company) | |
| | | |
| CWT | N/A (not by a trading company although CWT do own another trading company) | |
| Edgemere | N/A (not by a trading company) | |
| Erus | Barclays & Metalloyd | Approx. Sept 2011 |
| GKE | Louis Dreyfus (51%) | June 2012 |
| H & M | N/A (not by a trading company) | |
| Halley Metals | N/A (not by trading company – although Halley are in the same group as a trading company) | |
| Henry Bath | J P Morgan | July 2010 |
| Henry Diaper | N/A (not by a trading company) | |
| Hokkai Mitsui | N/A (not by a trading company) | |
| ICL | N/A (not by a trading company) | |
| Keystore | N/A (not by a trading company) | |
| Klooseterboer | N/A (not by a trading company) | |
| Metaal Transport | N/A (not by a trading company) | |
| Metro | Goldman Sachs | February 2010 |
| Mitsubishi | N/A (not by a trading company) | |
| MTI | N/A (not by a trading company) | |
| NEMS | Trafigura | February 2010 |
| Owensboro | N/A (not by a trading company) | |
| Pacorini | Glencore | Approx. November 2010 |
| Scale | Macquarie (40%) & Orion Mine Finance (40%) | Macquarie July 2012, Orion approx. September 2013 |
| S H Bell | N/A (not by a trading company) | |
| Steinweg | N/A (not by a trading company although Steinweg do own another trading company) | |
| Sumitomo | N/A (not by a trading company) | |
| Vollers | N/A (not by a trading company) | |
| WWS | Noble | Approx. October 2010 |
| Zuidnatie | N/A (not by a trading company) | |

**Figure 10: LME sheds by number, year and location**



* on 3rd Oct each year

Past enforcement actions, information in relation to which is publicly available, include:

i. In 1998 Albatros Warehousing ("Albatros") was fined a total of £201,650 by an LME appeal committee. Albatros issued warrants in respect of two shipments of tin which did not conform to the relevant LME special contract rules. Albatros failed to pay the fine and was delisted with effect from May 2000.

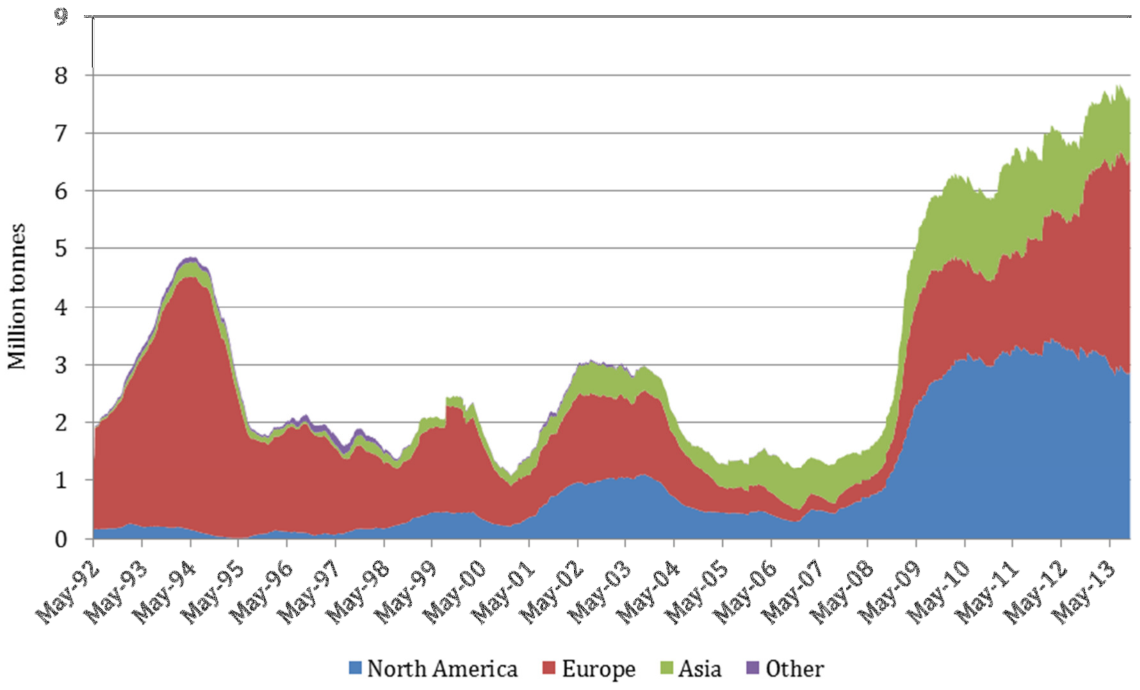
ii. In 2008 the Exchange settled a disciplinary action brought by the Exchange against North European Marine Services Ltd ("NEMS"). The Exchange instituted disciplinary proceedings against NEMS in relation to 461 nickel warrants issued by NEMS at the end of October and beginning of November 2007. Warrants had to be recalled in order to correct mistakes made by NEMS in describing the nickel shapes on the warrants and in describing the nickel weights on the warrants. Subsequent to the institution of proceedings, the Exchange and NEMS agreed a settlement in which NEMS agreed to pay a fine of £10,000.

# 3. RECENT HISTORY OF LME WAREHOUSING DEVELOPMENTS

## 3.1. Development of LME stocks

A key factor in the recent history of the LME warehousing system has been the considerable inflow of metal into LME warehouses as a result of the financial crisis. In particular, and as illustrated by Figure 11, 2008 and 2009 witnessed a significant amount of metal, presumably originally intended for industrial usage, being delivered in to LME warehouses.

**Figure 11: LME warehouse stocks since 1992**


Million tonnes
9
8
7
6
5
4
3
2
1
0
May-92
May-93
May-94
May-95
May-96
May-97
May-98
May-99
May-00
May-01
May-02
May-03
May-04
May-05
May-06
May-07
May-08
May-09
May-10
May-11
May-12
May-13
North America
Europe
Asia
Other

#

## 3.2. Development of LME load-in / load-out behaviour

As would be expected given the net metal inflow referenced in Section 3.1, LME warehouses processed a significant net load-in of metal in 2008-9, as illustrated in Figure 12. However, it is important to note that this trend has continued, with LME warehouses continuing to load in significantly in excess of their load out. This is particularly true for the five warehouses currently with queues (as further explained in Section 3.3).

## 3.3. Development of LME queues

A trend over the past five years has been the formation of queues at LME warehouses. As set out in Section 2.1.2, queues form when load-out requests cannot all be serviced immediately at the load-out rate of the warehouse (which must be at least the minimum load-out rate per Section 2.3.4.1). In this case, the backlog of warrants forms a queue. Queues are measured in calendar days, with the queue length representing the number of days for a metal owner cancelling a warrant today[7] must wait for a scheduled delivery slot. The development of queue lengths is set out in Figure 14 and Figure 15.

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[7] And completing other delivery formalities

**Figure 12: Net warranting across the LME system (monthly data)**

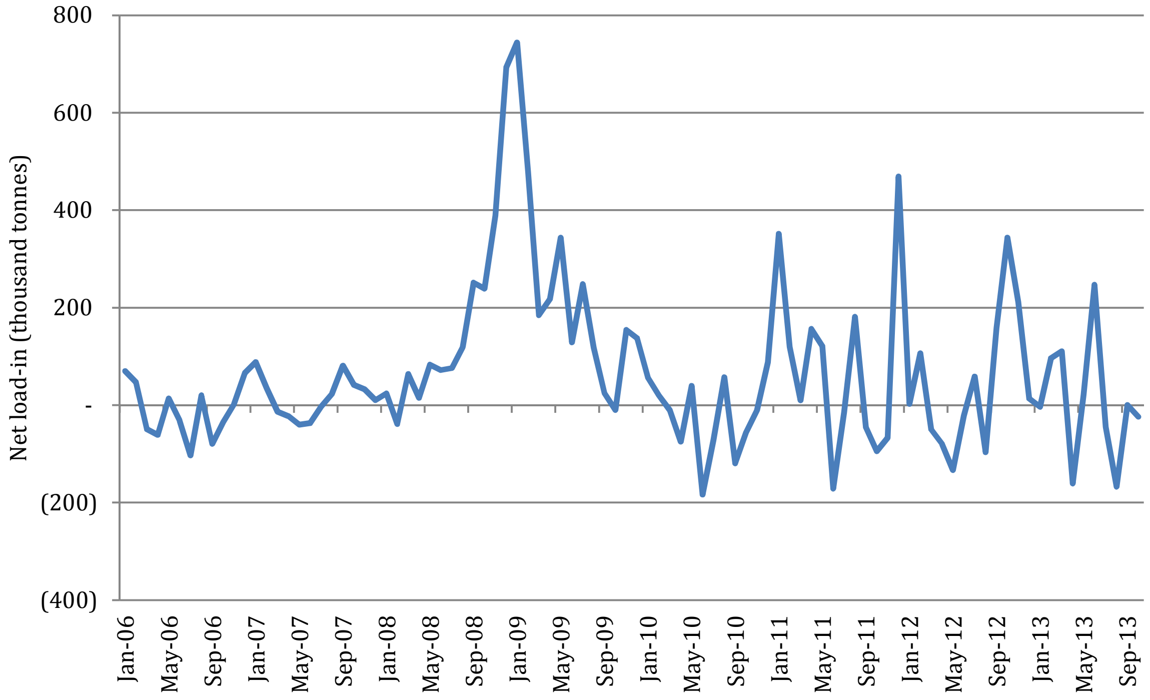

800
600
400
200
-
(200)
(400)
Net load-in (thousand tonnes)
Jan-06
May-06
Sep-06
Jan-07
May-07
Sep-07
Jan-08
May-08
Sep-08
Jan-09
May-09
Sep-09
Jan-10
May-10
Sep-10
Jan-11
May-11
Sep-11
Jan-12
May-12
Sep-12
Jan-13
May-13
Sep-13

**Figure 13: Net warranting for warehouses with current queues (monthly data)**

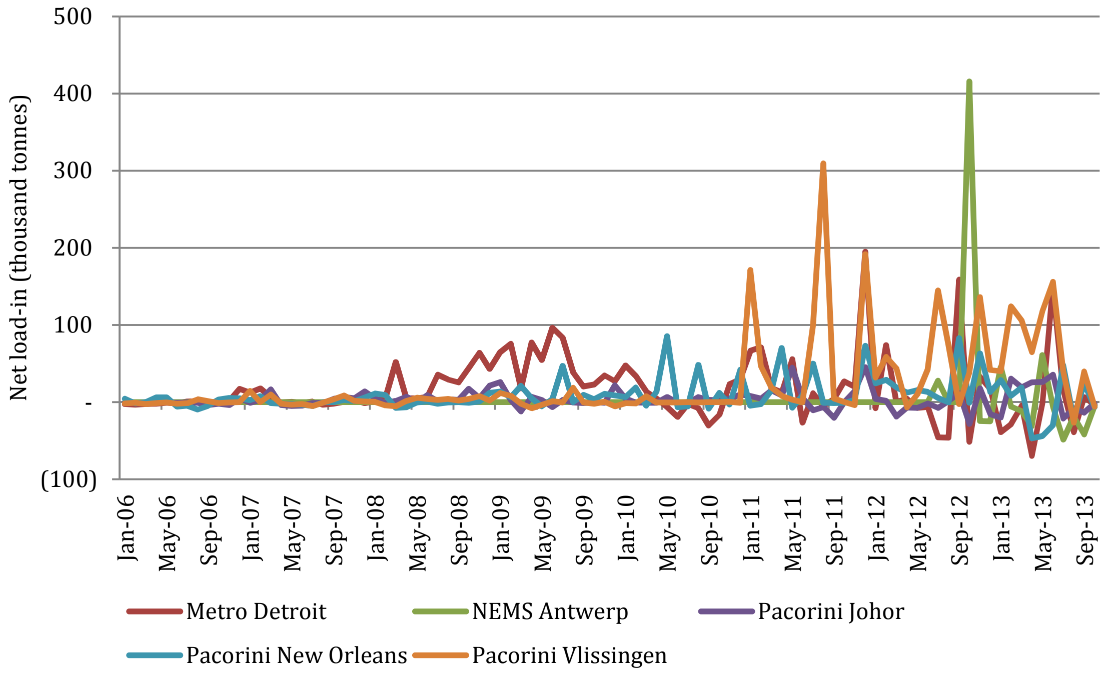
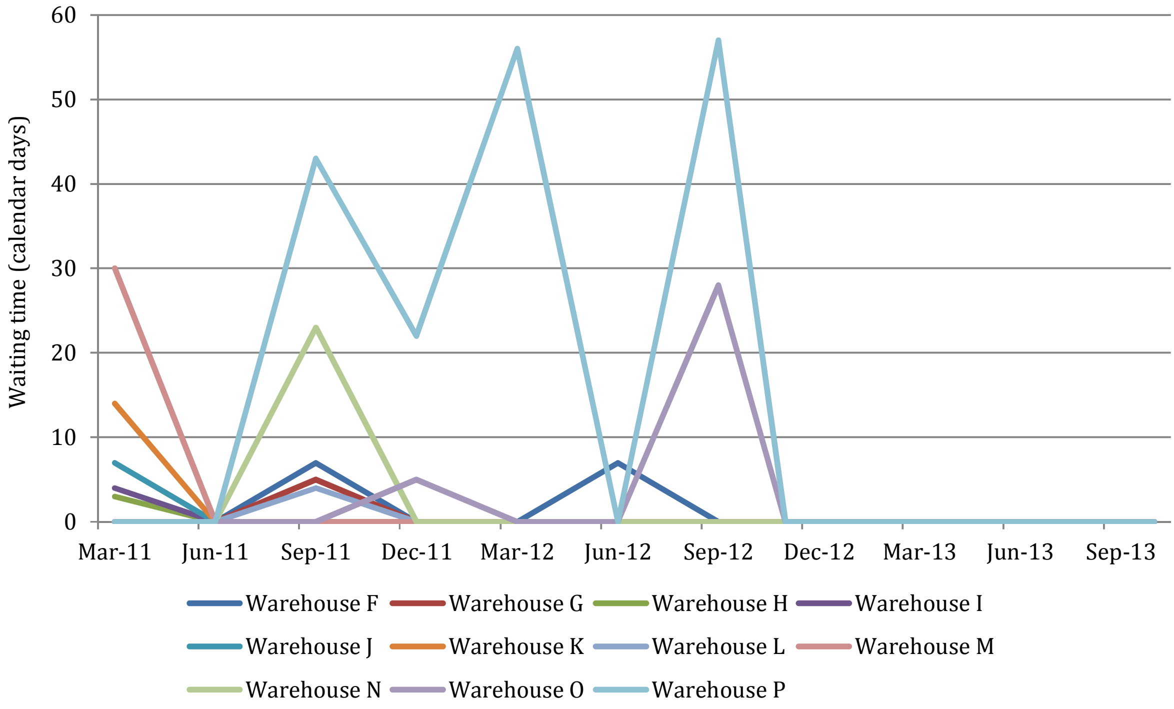
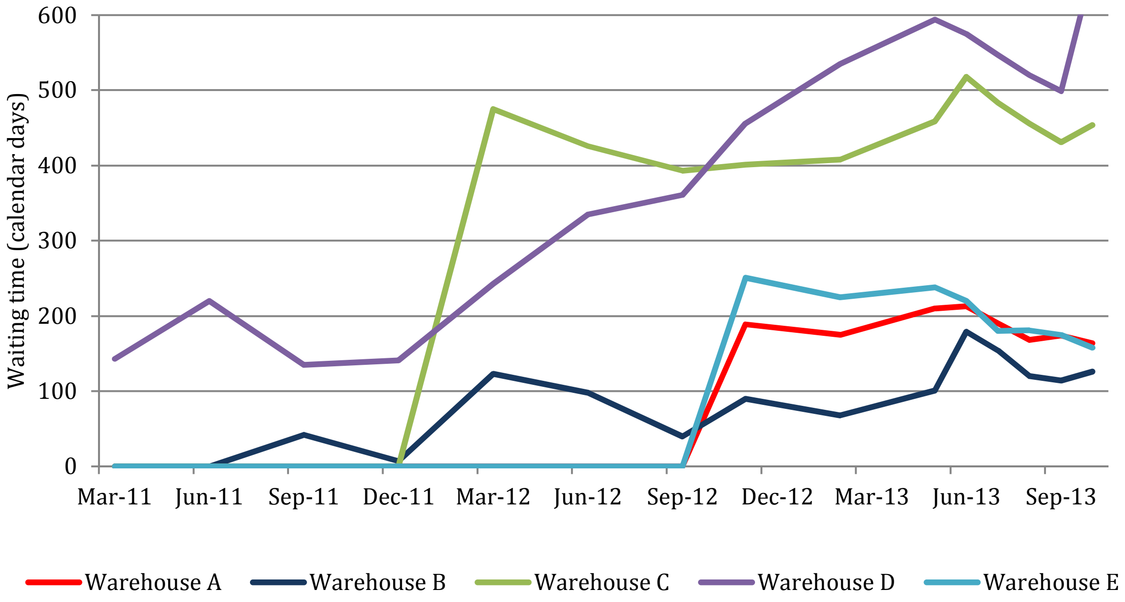

500
400
300
200
100
-
(100)
Net load-in (thousand tonnes)
Jan-06
May-06
Sep-06
Jan-07
May-07
Sep-07
Jan-08
May-08
Sep-08
Jan-09
May-09
Sep-09
Jan-10
May-10
Sep-10
Jan-11
May-11
Sep-11
Jan-12
May-12
Sep-12
Jan-13
May-13
Sep-13
Metro Detroit
NEMS Antwerp
Pacorini Johor
Pacorini New Orleans
Pacorini Vlissingen

**Figure 14: Development of historical LME queues[8]**



Waiting time (calendar days)
60
50
40
30
20
10
0
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Warehouse F
Warehouse G
Warehouse H
Warehouse I
Warehouse J
Warehouse K
Warehouse L
Warehouse M
Warehouse N
Warehouse O
Warehouse P

**Figure 15: Development of current LME queues[9]**



Waiting time (calendar days)
600
500
400
300
200
100
0
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Warehouse A
Warehouse B
Warehouse C
Warehouse D
Warehouse E

[8] i.e. warehouses which have historically exhibited queues, but which do not have a queue at the current point in time. Data sampled on quarterly basis between March 2011 and September 2012, and then November 2012 to October 2013

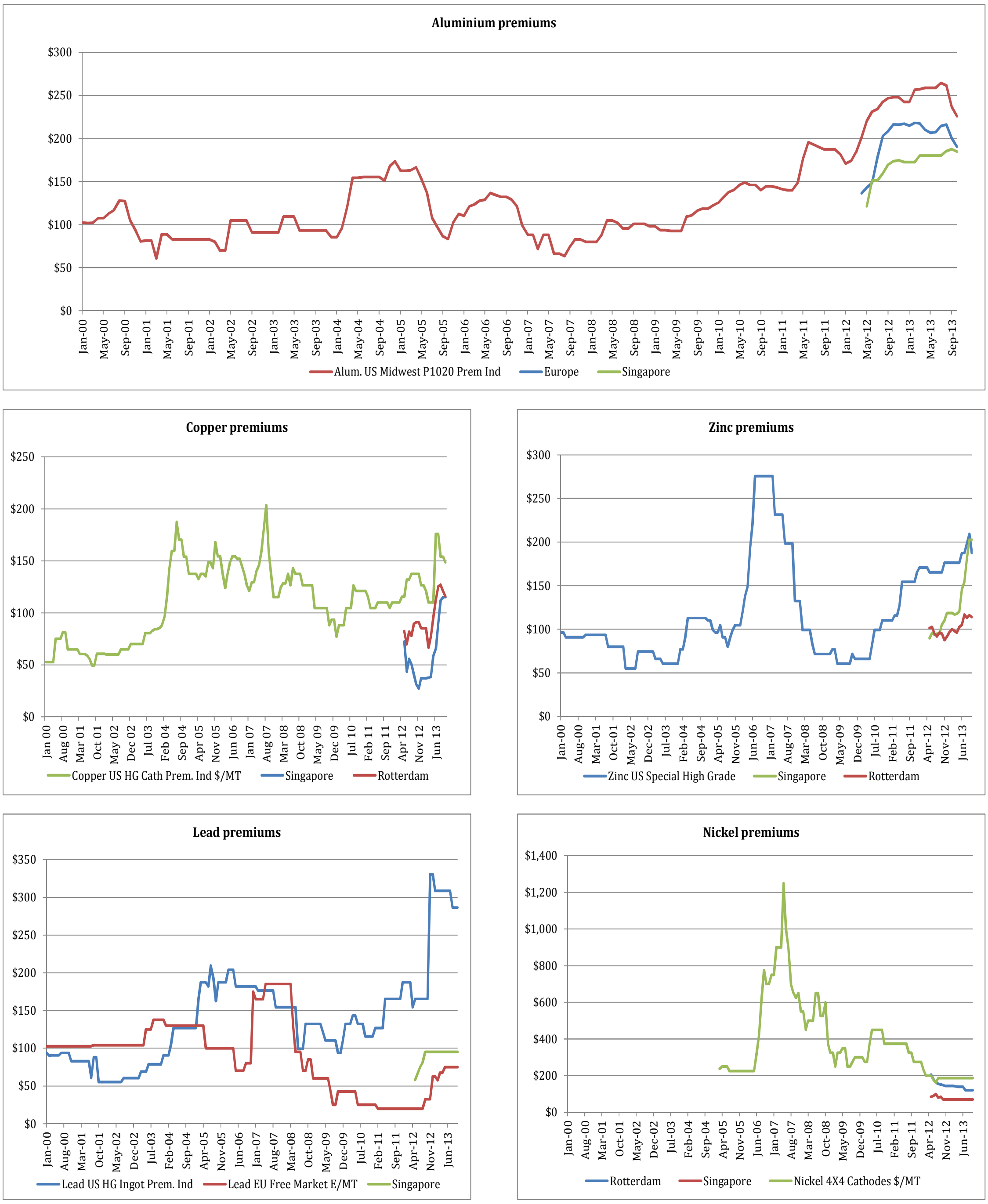
[9] i.e. warehouses currently with queues. Data sampled on quarterly basis between March 2011 and September 2012, and then November 2012 to October 2013

## 3.4. Development of premiums

The LME market has also been characterised by the development of premiums which are widely viewed by many participants and commentators as being linked to the existence of queues. A full economic analysis of premiums is set out in Section 5.4, but the quantitative data on premiums per-metal are set out in Figure 16.

It should be noted that, in general, premium data is compiled on the basis of reported transactions, and hence does not carry the same degree of auditability as exchange-discovered prices. This issue is further discussed in Section 6.4.1.2.

### Figure 16: Development of premiums


Aluminium premiums
$300
$250
$200
$150
$100
$50
$0
Jan-00 May-00 Sep-00 Jan-01 May-01 Sep-01 Jan-02 May-02 Sep-02 Jan-03 May-03 Sep-03 Jan-04 May-04 Sep-04 Jan-05 May-05 Sep-05 Jan-06 May-06 Sep-06 Jan-07 May-07 Sep-07 Jan-08 May-08 Sep-08 Jan-09 May-09 Sep-09 Jan-10 May-10 Sep-10 Jan-11 May-11 Sep-11 Jan-12 May-12 Sep-12 Jan-13 May-13 Sep-13
Alum. US Midwest P1020 Prem Ind
Europe
Singapore
Copper premiums
$250
$200
$150
$100
$50
$0
Jan 00 Aug 00 Mar 01 Oct 01 May 02 Dec 02 Jul 03 Feb 04 Sep 04 Apr 05 Nov 05 Jun 06 Jan 07 Aug 07 Mar 08 Oct 08 May 09 Dec 09 Jul 10 Feb 11 Sep 11 Apr 12 Nov 12 Jun 13
Copper US HG Cath Prem. Ind $/MT
Singapore
Rotterdam
Zinc premiums
$300
$250
$200
$150
$100
$50
$0
Jan-00 Aug-00 Mar-01 Oct-01 May-02 Dec-02 Jul-03 Feb-04 Sep-04 Apr-05 Nov-05 Jun-06 Jan-07 Aug-07 Mar-08 Oct-08 May-09 Dec-09 Jul-10 Feb-11 Sep-11 Apr-12 Nov-12 Jun-13
Zinc US Special High Grade
Singapore
Rotterdam
Lead premiums
$350
$300
$250
$200
$150
$100
$50
$0
Jan-00 Aug-00 Mar-01 Oct-01 May-02 Dec-02 Jul-03 Feb-04 Sep-04 Apr-05 Nov-05 Jun-06 Jan-07 Aug-07 Mar-08 Oct-08 May-09 Dec-09 Jul-10 Feb-11 Sep-11 Apr-12 Nov-12 Jun-13
Lead US HG Ingot Prem. Ind
Lead EU Free Market E/MT
Singapore
Nickel premiums
$1,400
$1,200
$1,000
$800
$600
$400
$200
$0
Jan-00 Aug-00 Mar-01 Oct-01 May-02 Dec-02 Jul-03 Feb-04 Sep-04 Apr-05 Nov-05 Jun-06 Jan-07 Aug-07 Mar-08 Oct-08 May-09 Dec-09 Jul-10 Feb-11 Sep-11 Apr-12 Nov-12 Jun-13
Rotterdam
Singapore
Nickel 4X4 Cathodes $/MT

## 3.5. LME responses to queues

**Figure 17: History of LME actions**

Oct 2010
Europe Economics Warehouse Study commissioned
Nov 2011
Information Barriers strengthened by 3rd party assurance audit
Nov 2011
Increase in the minimum load out rates
Aug 2012
Additional load out rates for nickel and tin confirmed
Dec 2012
Additional non-dominant load-out rate confirmed
Jan-Jun 2013
Comprehensive LME internal review on queues and potential courses of action
Jul 2013
Consultation initiated with market

In October 2010 the LME commissioned Europe Economics to "prepare an independent assessment for the LME on whether the current requirements in the LME contract for rates of physical delivery out are satisfactory". This followed a number of complaints concerning warehousing received by the LME between March 2009 and August 2010. The assessment was based on information gathered from warehouse visits and a series of interviews, and was principally focused on the aluminium market.

The report highlighted that long queues reduce the value of warrants, and that it was these lower-value warrants which were being used to settle LME contracts and set LME price. Revenues generated by large stocks allowed warehouses to offer incentives to attract more metal and this exacerbated the problem leaving the most numerous and least valuable warrants dominating the settlement of contracts. Evidence for this included increased premiums (according to stakeholders these were in excess of the costs of arbitraging between locations), and changing spreads – both of which were seen to be in line with the emergence of long queues.

The report points to the macroeconomic climate as a causal factor – 2008's collapse in demand leading to surplus material and low interest rates. The report disagrees, however, with the idea that this constrained the supply of warrants and decreased liquidity arguing that these would have led to backwardation. It does agree that financing deals affected the distribution of cancelled warrants, concentrating them on warehouses which did not engage in financing deals. Finance deals also meant that metal was moved on the basis of spreads; large positions therefore meant high levels of cancellations which led to queues. This alone was not sufficient to create the queues, however, but was compounded by the concentration of queues in specific warehouses, each of which only needed to load out 1,500 tonnes per day.

Europe Economics did not believe that increased physical demand for metal would solve the problem, estimating that at best it would still take two and a half years to empty warehouses. More significantly, they argued that the size of incentives that warehouses could pay would mean they would be able to maintain their stocks. On this basis, increased physical demand would mean higher cancellations leading to longer queues.

The report outlined five main policy options to address the issue.

1) Capping particular locations – this had only been used once previously, and went against the principle that LME stocks should expand and contract freely to reflect the physical market.
2) Increasing loading out requirements for all warehouses – although this was already at the limit of what was consistently achievable for some small warehouses (2,000 tonnes per day was seen

as the limit). It was estimated that this would still leave queues of 54 days in 2010 and given the problem was limited to a small number of warehouses, would impose an unnecessarily large operational cost on whole warehousing industry which would likely be passed on to warrant holders in the form of increased rents or FoT rates.

3) Increasing loading out requirements for larger warehouses (1,500 tonnes per 300,000 tonnes of stock) in order to eliminate the critical mass feature of regulations at the time. This would affect fewer warehouses but while it would probably eliminate indefinitely large queues, it would not deal with transitory long queues caused by sudden large cancellations. It should, however, create more even distribution across warehouses by making it difficult for the largest warehouses to maintain stock levels while floating their metal at full rent.

4) Extending the current loading out table proportionately beyond 7,500 square metres – Europe Economics outlined how more stringent load-out requirements of 2,000 tonnes per day or 1,500 tonnes per day per 300,000 tonnes of stock would not be physically practicable. Even if they were, the operation costs would be so high that they would lead to rent and/or FoT charges that the warehousing systems, as then configured, might be unable to support.

5) Inviting warehouses to offer rent rebates – equivalent to half rent for metal caught up in queues between 10 and 20 days, and zero rent beyond 20 days, was estimated to likely cost the warehousing industry as a whole $14.9 million in 2010. However, there were doubts about the feasibility of this option.

The report recommended the LME take action since the loading out regulations were permitting queues of an undesirable length but expressed the view that a universal increase in load-out requirements would impose large costs across the warehousing industry without eliminating long queues.

The report recommended further discussion on rent rebates which could address some aspects of the problem but had feasibility issues which could hamper effectiveness.

The report recommended that the most acute problem – persistent queues in critical mass warehouses – would be addressed by the LME increasing the loading-out requirements to 1,500 tonnes per 300,000 tonnes of stock. The report thought this could be done without imposing a large burden on warehouses and would give an upper bound to queue length. However, the report identified that 200 days was still longer than desirable, and therefore recommended that this limit be formally reviewed every 6 months and the level of stocks to which the 1,500 tonnes requirement applied be reduced should lengthy queues persist.

On the basis of this report, on 27 May 2012 it was recommended to the Board that the sliding scale for load-out requirements be changed so that the requirement was linked to amount of metal stored rather than storage capacity.

# 4. THE CONSULTATION

## 4.1. History of the Proposal and Consultation

Further to Section 3.5, since the first consultation process in 2011, the LME has undertaken an ongoing process of monitoring and action in respect of warehousing. In particular, the LME has followed a six-monthly review cycle, of which the current Proposal and Consultation is the latest incarnation.

However, given the significant increase in market interest in this topic in late 2012, it was felt appropriate by the Board to ensure that the Consultation provided a comprehensive opportunity for the market to debate the complex issues involved, and provoke sufficient feedback to allow the Board to solicit and understand the views of stakeholders across the market. Additionally, in order to ensure that the discussion was centred on practical solutions, it was felt that the optimal approach would be to propose a course of action, around which discussion could be based, while emphasising that the Board remained open to alternative approaches raised in the course of the Consultation.

Accordingly, in January 2013, the LME Executive was asked to commence a comprehensive internal study, based on prior market feedback and the Executive's understanding of the warehousing system and its associated challenges. At the April 2013 LME Board meeting, a full discussion of the drivers behind the warehousing issue was held, followed by a review of all of the potential courses of action which were known at that time to the LME[10]. As a result of this meeting, the Board asked the Executive to proceed with the concept which was developed into the Proposal. The resultant Proposal was then presented to the June LME Board meeting, at which the Board took the decision to launch the Consultation on 1 July 2013.

A key principle was the need to treat all market participants equally, which precluded any "pre-sounding" of the Proposal with industry stakeholders[11]. As such, the Consultation is viewed as the correct vehicle for collecting all market feedback, including potential alternative proposals.

## 4.2. Overview of the Proposal

A full overview of the Proposal is set out in the various documentation released with the Consultation. In summary, the key elements of the Proposal are as follows:

- The Rule targets only Warehouses with queues over 100 days ("Affected Warehouses").

- The Rule respects historical decisions and investments made by warehouse operators, in respect of metal loaded-in to the warehouse prior to the Rule. If a warehouse chooses to stop loading in new metal, then it will encounter no new obligations under the Rule.

- The Rule acts to link load-out to load-in. In particular, the Rule ensures that Affected Warehouses are compelled to load out more metal than they load in – with the ultimate result that stocks, and eventually queues – will fall. The rate at which the queues will fall is dependent on the decay factor, currently set at 0.5 – which, in simple terms, implies that the Rule needs to operate for two days in order to extinguish one day of queues[12].

The Proposal was chosen by the Board on the basis that it most directly targets the underlying market issue of waiting times in respect of metal, in that the Proposal's mathematical effect is to ensure the eventual reduction of the queues causing such waiting times.

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[10] Including proposals from previous consultations, market feedback and internal LME analysis

[11] The only external engagement on the warehousing topic prior to 1 July was in the context of meetings which were requested by market participants, and at which the Proposal was not raised. The User Committee also discussed warehousing in the context of its mandate to provide market views to the Board – however, given the presence of market participants on the User Committee, the Proposal itself was not previewed with that Committee. The FCA was advised of the Proposal prior to publication

[12] There are a number of complexities in respect of this analysis. In particular, the Rule will only apply on business days, whereas queues are stated in terms of calendar days. Secondly, queues may diminish more quickly if warehouse choose not to optimise their load-in / load-out model. Finally, queue development will be dependent on warrantholder cancellation behaviour

## 4.3. Nature of responses received

The LME Board decided that the Consultation should be conducted by the LME Executive, and that Directors would not be directly involved in the process. Instead, market views have been consolidated into this Report, which will form the basis for Directors to reach their decisions.

In total, the Consultation has received 33 written responses, and LME staff have undertaken over 70 meetings – in this regard, meetings have been scheduled with every market participant who has requested one. In addition, discussions have been held with all LME metals committees, in addition to the User, Warehousing, Trading and Ring Dealers' Committees. Furthermore, group meetings have been organised by various industry bodies[13].

It has been emphasised to the market that written responses to the Consultation are preferred, as they can be included with this Report and seen directly by the Board. However, factors such as regulatory attention and pending lawsuits have reduced the willingness of certain market participants to commit their views to writing. Additionally, certain respondents have indicated that the submission of formal views could impact sensitive commercial negotiations with both suppliers and customers. In these cases, the oral views of the respondent have been incorporated into this Report. Additionally, the exercise of judgment by the LME Executive, as laid out in the recommendations sections of this document, has been informed by the Consultation in its entirety, including oral responses.

## 4.4. Categories of respondent

In assessing the responses to the Consultation, it is helpful to consider the various categories of respondent. To a large extent, the views expressed are driven by the economic self-interest of the respondent, and it is appropriate to bear this fact in mind when assessing the value of such responses – this has also been a key factor in the formulation of recommendations in this document by the LME Executive. The key categories of respondent are as follows:

i. **Metals producers.** This includes smelters producing the metal forms which are sold on the LME, and also upstream producers (e.g. miners) who will receive prices for their product (e.g. concentrates) via a linked formula. Particularly in the aluminium industry, smelters believe that they benefit from the queues at the warehouses, as they associate these with premiums, and hence a greater achievable price for their metal. This is particularly relevant given current LME prices – if smelters achieved just the LME base aluminium price for their metal, then this price would be below the cost of production for many producers.

   As set out fully in Section 5.4.4, a more detailed economic assessment would suggest that, over the economic long run, addressing the queue problem would not change the all-in price of metal, but rather would rebalance the absolute price between the LME and premium components. However, in the short term, it is absolutely possible that premiums could fall without a corresponding increase in the LME price (given especially, as set out in section 5.4.4.1, that the warehouse incentive often underpins the willingness of merchants to bid a premium for producers' excess metal), which would leave many smelters facing difficult economic circumstances, and potentially leading to the shutting of facilities.

   Additionally, it is important to note that many individuals within producers are personally motivated by the size of the premium achieved, especially within sales teams where compensation is often paid relative to the premium negotiated into both long term and spot sales contracts. At a corporate level, sales are often benchmarked to LME prices, and so achieving a premium uplift will generally deliver strong financial performance against market expectations.

   However, it is not the role of the LME to achieve a given price for any market participant, and so this cannot be a guiding consideration for the Consultation.

ii. **Metals users (fabricators and converters).** In general, the "end users" of metals (i.e. purchasers of finished products containing metal) do not see the contribution of the metals price to their products. As such, primary "user" interest arises from fabricators and converters – i.e. players who buy metal (either LME shapes or a derivative thereof) and convert it into a more fabricated shape. These players are directly exposed to metals prices as both an input and output cost of their business model, and fall into two broad categories:

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[13] International Wrought Copper Council, Aluminium Stockholders' Federation, EUROFER and the Aluminum Users' Group

- Those who are able to "pass-on" the premium to their downstream customers. An example of such a player would be a wire manufacturer, whose agreements with customers would likely include price linkage to both the LME and the spot metal premium[14]. Arguably, such a player is not economically impacted by the premium, given that this is a "pass-through" between its input and output costs. However, the difficulty of premium hedging still represents a core concern – because there will be a time lag between the converter purchasing the metal and selling the resultant product, the scope for premium variance to impact margins remains, and in the absence of a readily-available premium hedging market, cannot be easily managed. Furthermore, the lack of discoverability around the premium causes significant commercial tension in respect of contract negotiations, given the difficulty on agreeing on a reference metric.

- Those who are not able to "pass-on" the premium to their downstream customers. In general, these will be players who can pass on directly neither the LME price nor the premium (e.g. beverage companies packaging in aluminium cans or firms manufacturing products which have a proportionately low metal content) – however, there are also participants who can pass on the LME price, but who for historical commercial reasons have chosen not to embed metals premiums into sales agreements. For all such players, an increasing premium will directly impact margin. While the lack of hedging solutions may be partly an issue (as input premiums could then be hedged over the lifetime of fixed-price sales contracts), the likely expense even of a hedged solution ensures that such players will always argue for a lower-premium pricing environment.

  As with producers, individual incentives are also at-play – purchasing managers within these metals consumers will be judged on their ability to minimise premiums paid. Consumers which remain sensitive to the base LME price may also be operating on the basis that the short term impact of a reduction in queues would be to reduce premiums without a commensurate increase in LME price, resulting in a temporary reduction in all-in sourcing prices[15]. However, in general, such participants express the view that the existence of a premium is far more troublesome than even an increasing LME base price.

iii. **Operators of Affected Warehouses**. The existence of queues provides an economic benefit to those with Affected Warehouses, and it is hence to be expected that these players would look to maintain their business model for as long as possible. Although Affected Warehouses have argued that their economic model is not predicated on the existence of queues, it is clear (as set out in Section 5.2.2.2.3) that the current load-out requirements do underpin the ability of such warehouses to attract metal via the payment of incentives.

iv. **Operators of non-Affected Warehouses**. Operators of non-Affected Warehouses have long complained that they are unable to compete with Affected Warehouses for metal, as the levels of incentive that can be offered by a player with a queue is naturally higher than one without a queue. As such, non-Affected Warehouses view the Proposal as an opportunity to "reset" the market, and allow them to compete for metal.

It is important to note that non-Affected Warehouses operate a business model of attracting metal through rent deals, which are predicated on metals users agreeing to lock-up their metal. As such, non-Affected Warehouses will look to maintain this business (which, arguably, is also not positive for the free circulation of warrants in the LME's physical network) while growing their "free metal" business in parallel.

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[14] Likely a survey-priced local market premium. NB this is distinct from the conversion premium, which is the margin that the converter will add to the output price to reflect the value of its work

[15] Although many consumers are also stockholders, and as such would not welcome the accounting impact of a reduction in value of their stocks, unless appropriate hedges are in place

v. **Merchants and brokers**. These players do not, in general, have a fundamental view on the metals price (LME price or premium) – however, many do benefit from the existence of metals premiums, as the more opaque nature of this market (in contrast to the on-exchange nature of the LME price) conveys an advantage to the expertise of merchants and brokers, who have built-up strong modelling capabilities around premiums and queues.

While it is a fundamental principle of markets that those players who invest in analytical capabilities can expect to benefit from the resultant information advantage, this does also underline users' complaints around premiums, namely that they render the LME market extremely difficult for "normal" users to participate.

In addition to the roles of players in the metals chain, respondents are also characterised by the metal on which they focus. In general, the issue of premiums has become most contentious in the aluminium industry, and hence views of producers and users are most polarised in this space. The copper industry is not yet marked by the same degree of disagreement, and so responses from such players are characterised more by agreement from both producers and consumers that the priority is to prevent "contagion" of the issue to the copper space.

# 5. MARKET VIEWS ON WAREHOUSING, METAL FLOWS AND PRICING

## 5.1. Basis of a market model

Construction of a market model was not one of the stated goals of the Consultation, and hence written feedback has not addressed this point. However, in many of the numerous meetings undertaken as part of the Consultation, the question of market structure and pricing has been raised, and it is hence appropriate for this Report to address the topic.

The information set forth in this Section should hence be seen as primarily the analytical view of the LME Executive. However, this view has been refined and shaped via the Consultation, and would appear to be the view of market structure which best captures the consensus position of those engaged during the Consultation process.

## 5.2. Warehousing economics

Given the core role of warehouses in the global flow of metals, it is useful first to consider the economics and incentives of the various players in the warehousing system.

### 5.2.1. On-LME vs. off-LME metal storage

When looking to store metal, metal owners have the choice between LME and non-LME storage[16]. In broad terms, this is a trade-off between quality (with LME storage being higher-quality, given the requirements imposed by the LME on providers of LME storage) and cost (with LME storage being more expensive, given the cost of providing the incremental level of service[17]).

In general, LME storage will be chosen if required for one of the following reasons:

i. The metal is to be sold on the LME, and an LME warrant will be required to deliver against the LME short position. This includes metal which may not be sold for a period of time, but where considerations of logistics or economics render unattractive the mechanics of removing the metal from LME storage and then re-warranting in time for LME delivery.

ii. An external stakeholder demands that the metal owner utilises LME storage. For example, a bank providing metals finance may demand that the underlying metal is backed by an LME warrant. This is both because the LME warrant provides more convincing evidence of title, but also because the default close-out strategy for the financing provider will be to sell the metal (indeed, a short option may already have been taken on the LME as a hedge), and the storage of metal on LME warrant guarantees that the metal can be delivered for sale on the LME.

    In this respect, some financing providers are satisfied by a "standby" agreement, whereby financed metal is held off-LME (hence benefitting from lower rent levels), but with a guarantee from an LME-licensed warehouse that the metal can be warranted on-demand – most likely, if the bank wished to liquidate the position and sell the metal on the LME. Ultimately, this is an issue for banks' internal risk management and auditing policies – anecdotal evidence would suggest that some bank auditors require LME warrants in order to be satisfied of risk offset against an open LME short position, while others require either a standby agreement or even just a reasonable plan for warranting.

iii. The metal was bought on the LME, and so is in the form of an LME warrant, which the new owner either has not cancelled, or has cancelled but the metal resides in a queue.

### 5.2.2. Storage models

In general, there are two "use cases" for warehousing, depending on the medium term intentions of the metal owner.

[16] Including warehouses licensed by competing metals exchanges
[17] And potential other factors, as outlined further below

#### 5.2.2.1. Traditional metal storage

If the metal owner will want to withdraw the metal from the warehouse himself, then the focus will be on "traditional" warehouse logistics, service and value. The metal owner will define a minimum standard of service (which may include the requirement for an LME warehouse given considerations in Section 5.2.1), and then attempt to achieve the best economic terms from warehouse operators in reasonably convenient locations[18].

Price negotiations between the metal owner and the warehouse in this context will be driven primarily by the quantity of metal, and length of time during which the metal owner is willing to "lock-up" the metal, i.e. to leave it in the warehouse. The longer the lock-up period, the better the economic terms which can likely be achieved from the warehouse operator. In the case of off-LME storage, a commercial contract can simply be agreed between the metal owner and warehouse operator. In the case of LME storage, the warehouse's published rent must still be charged through LMEsword, and hence preferential economics will be provided to the metal owner by means of a "rent rebate agreement", whereby a proportion of the charged headline rent will be returned to the metal owner, thus delivering a net discount rate.

Because all costs (load-in costs, rent and FoT charges) will be borne by the original metal owner, economics will be viewed on an "all-in" basis – although clearly the split between one-off and per-day costs will be relevant based on length of storage. In particular, incentives (paid by the warehouse operator to the metal owner) do not generally figure in these transactions – given that incentives are funded by the warehouse operator on the basis of future rent, and all rent would be paid by the original owner, the economic effect would be neutral.

As part of the warehouse selection process, it is likely that metal owners will prioritise warehouses which do not have queues[19], given that the presence of queues will pose logistical difficulties for the metal owner in withdrawing the metal[20]. This factor manifests itself in the phenomenon of "locked-up warehouses" – in general, and as shown in Figure 18, warrants at warehouses without queues rarely circulate through the LME settlement process, because the majority are subject to rent agreements[21].

This usage scenario partially explains the drive by merchants to acquire warehousing entities (especially where the warehousing subsidiary does not have queues[22]) – the profit margin which would otherwise be extracted by a third-party warehousing operator can be internalised within the group.

#### 5.2.2.2. Immediate LME warrant sale

If the metal owner plans immediately to sell its metal on the LME, then the considerations in respect of warehouse selection will change. Firstly, the chosen warehouse will need to be an LME-licensed warehouse, so that a valid delivery warrant can be procured. The second distinction is that the metal owner will select its chosen warehouse and load in the metal – but, once the warrant has been sold on the LME, the owner will have no further relationship with the metal or the chosen warehouse. In the case of a cash sale on the LME, the original owner will only pay rent for a matter of days – and, as such, the majority of the warehouse economics will be borne by the buyer of the warrant, rather than the original metal owner.

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[18] Clearly, more distant locations will also be considered if incremental shipping costs are outweighed by better economics

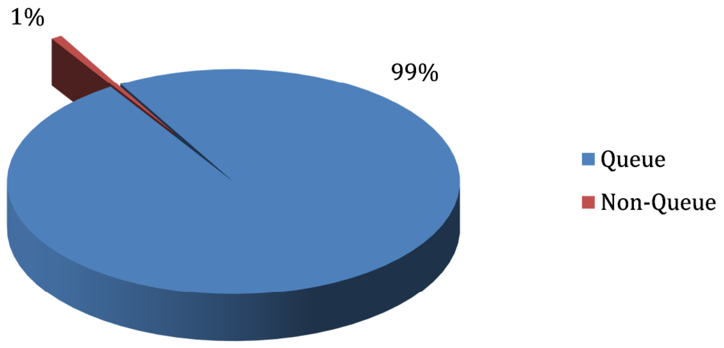
[19] This is primarily a concern for LME network warehouses – queues are less of an issue in respect of off-LME storage, because the warehouse operator is not forced to process load-out requests on a strict queue basis, and so ready metal access can be guaranteed on an individual client basis

[20] In rare circumstances, a queue may be acceptable if the metal owner plans to store for longer than the length of the queue, but unpredictability as to queue development may still pose a concern

[21] Even once the rent agreement has expired and the owner wishes to sell the underlying metal on the LME, it would be unlikely for a metal owner to submit that warrant into clearing, because the warrant would have a premium value given the lack of queues at the warehouse in question, and this premium value would not be realised through an on-LME sale. In this circumstance, the warrant would either be sold in the OTC market, or the metal withdrawn, loaded-in to another warehouse in exchange for an incentive, and the resultant warrant sold on the LME

[22] e.g. Henry Bath, owned by JP Morgan

**Figure 18: Warrants used in LME settlement by warehouse on 18 September 2013 by queue**



### 5.2.2.2.1. Incentives

This situation – whereby the original metal owner effectively chooses a warehouse provider on behalf of the buyer of the metal – clearly creates conflict between the economic incentives of the various parties. In particular, it has become common practice for warehouse operators to offer "incentives" to metal owners to attract load-in of metals, with such incentives being funded by the charges which will be paid by the party subsequently acquiring that warrant on the LME.

A warehouse operator will only offer incentives where it is confident that the metal will subsequently produce sufficient fees for the warehouse. In general, the warehouse will rely on the following cashflows to fund incentives:

i. Load-out charges paid by the acquirer of the warrant. In particular, the warehouse operator knows that the FoT charge must eventually be paid, and so can rely on the profit element of the FoT charge to fund incentives[23]. It should also be noted that, in the context of these transactions, the party loading-in metal is not charged any logistical fee[24], and all load-in charges are covered by the FoT load-out fee.

ii. Ordinary-course rent paid by the acquirer of the warrant. In the normal course, the amount of rent paid will be based on a statistical calculation of the average resting-time of the metal in the warehouse, which will be driven by prevailing economic factors and the need of industry to access metal.
However, resting time will also be impacted by the charging structure of the warehouse. In general, warehouses charging a higher FoT will be less likely to see warrant cancellations, because users will naturally choose to load out metal from locations where the load-out charge is lower. However, higher rents will incentivise cancellations, given that longer-term storage users will be more incentivised to seek cheaper storage (including, where appropriate, off-LME storage). As such, rent and FoT interact in a deterministic manner, with high FoTs acting to lock-in rents.

iii. Rent paid in queues. A special case arises where a warehouse has queues, because the warehouse operator can be assured that the metal will need to remain in the warehouse for a minimum length of time (the length of the queue).

In this respect, it is important to note that queues do not need to exist at the time in order for a queue-based incentive to be paid. The worst-case scenario for the warehouse

[23] Arguably the FoT becomes less valuable the longer the warrant remains in the warehouse, as a later FoT payment is worth less on a time value of money argument. However, this is more than offset by the rental yield while the warrant remains in the warehouse – and the warehouse operator has the power to increase FoTs each year, so a later warrant cancellation may incur an uplifted FoT charge

[24] Which would, of course, be economically a deduction from the incentive

operator would be if all of its warrants were cancelled on the same day, and the metal loaded-out immediately. However, this cannot happen, because the cancellation would create a queue, and metal would be loaded-out over a period of time pursuant to the load-out rules. As such, simply the threat of queues allows warehouses to model incentives on the basis that metal will be guaranteed to stay in the warehouse for an average period of time, even if all warrants are cancelled simultaneously.

This is consistent with the view expressed by several warehouse operators that queues are not required for their business (including their continued payment of incentives), because their optimal scenario is a constant-throughput model, which ensures a constant level of stock and hence a constant level of rent. However, if the load-out requirement were infinite, then it would be much harder to see warehouses paying significant incentives to feed this constant-stock model, given the danger that all metal could leave the warehouse, and hence not achieve the required return to justify paying the initial incentive

In the context of the Consultation, it is crucial to note that incentives can be paid even in the absence of queues – indeed, incentives appear to have been a feature of the LME market since at least the 1980s, and queues have not existed for most of this time. If queues do not exist, then the FoT charge becomes the key route by which value is locked-in. This gave rise to rising FoT levels through the early 2000s, and a study in 2006-7 as to whether the issues could be addressed by either capping FoT charges (addressed more fully in Section 2.1.3.1), or by converting the LME contracts from in-warehouse contracts to free-on-truck contracts[25] (addressed more fully in Section 2.1.3.2).

As a final point, it should be noted that incentives are presented in a number of ways. A common technique is as a "freight rebate", i.e. to cover costs incurred by the metal owner in shipping metal to the warehouse. Anecdotally, it would appear that freight rebates are offered which more than offset any conceivable freight charges which would be incurred by metal owners in the ordinary logistical course.

#### 5.2.2.2.2. Impact on warehouse charges

Given the drivers above, it is not surprising that the general trend for both rents and FoTs has moved upwards (per Figure 4), as this allows greater apparent value to the warehouse operator (through the cashflow from storage of the warrant) and to those delivering metal into the warehouse (through the incentive, which is funded from the warehouse operator's cashflow).

Perhaps more difficult to explain is why the rents in respect of warehouses without queues have moved broadly in-line with the rents in respect of warehouses with queues. Economically, it would appear that warehouses with queues would be able to charge higher rents (given the lock-in effect of the queues), whereas warehouses without queues would be more incentivised to charge lower rents in order to keep metal in the warehouse through owner choice. However, the general approach of such warehouse operators is to maintain high rents to capture value from metal owners who cannot move their metal[26], and enter into rent deals for those who can.

It may appear that a desire to attract "traditional" metal storage per Section 5.2.2.1 would act as a downward pressure on rents and FoTs. However, in practice, these are almost always negotiated via rebate agreements, and so the published price levels are broadly irrelevant in this context.

In an economic context, the rent issue raises three questions, namely:

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[25] Under free-on-truck contracts, an FoT charge cannot be levied on a party withdrawing metal, and so warehouse operators generally need to levy a fee on the party loading-in the metal. Accordingly, the practice of paying an incentive against logistics fees becomes irrelevant, as the party receiving the incentive would also pay the load-in fee

[26] For example, a short position holder who will need to deliver within a week, and for whom moving the metal is not a practical or economically-rational approach. In practice, given that warrants in these warehouses are unlikely to be acquired in LME settlement, the majority of metal owners will have rent deals in place, and so this scenario applies to a minority of warrants in non-queue warehouses

i. Whether there is competition in the warehouse market. From the perspective of the warehouse operator, economic factors will always prevail – so, although warehouse operators do not compete for metal through low charges, they instead compete for metal through incentives, and market economics will act to limit super-normal returns, as a competing warehouse will simply attract more metal through a greater incentive. As such, the market would appear to operate under normal economic principles, but with the avenue of competition being the incentive offered, rather than the fees charged.

ii. Whether the warehouse operator and the party loading-in metal are conspiring to impose unfair charges on the purchaser of the warrant, and hence the spot price of metal. As set out below in Section 5.3.2, this does not appear to be the case, because the purchaser of the warrant is broadly aware of the charges (rent and FoT) which will have to be paid, with the effect that the warrant will be acquired at a discount (vs. free metal in the market).

iii. Whether the shape of the forward price curve is impacted by rents. The significance of rents is that the market's contango structure is impacted by the cost of storage – in general, the greater the cost of storage, the more steep the gradient of the forward curve.

However, the analysis here is complicated by the substitutability of off-LME storage, and the potential for longer-term holders of metal to enter into rent deals even in respect of on-LME storage. As such, it is hard to argue that headline LME rents are the correct cost of carry across the forward curve.

The front end of the curve, on the other hand, does not benefit from substitutability, because it is not logistically possible to load metal out of an LME warehouse and back in to capture an overnight rent differential. As such, the price of short-dated carries on the LME market is likely impacted by the published rents. However, it is harder to argue that the attractiveness of financing deals is materially heightened because – by the time the curve reaches timescales where financing becomes a significant consumer of metal – the substitution effect becomes more pronounced.

As such, it seems valid to conclude that high rents and FoTs (and the existence of the queues which catalyse such charges in the current market), as well as the practice of warehouse operators paying incentives, do not appear to cause an economically-irrational market, in that normal economic principles of competition continue to apply. However, it is also clear that they do have effects – namely the creation of a discount warrant market, with consequent downward pressure on the LME price – which are unhelpful for the role of the LME as a price reference venue. The LME has in the past considered whether it could seek to regulate matters by imposing a cap on both the rents and FoT charges which the LME-licensed warehouse operator may charge. As set out more fully in Section 2.1.3.1, such regulation has historically been viewed as potentially problematic – although Section 6.5.1.1.8 proposes a route forwards in respect of this topic.

#### 5.2.2.2.3. Incentive levels

It logically follows from the analysis above that greater incentives can be paid by warehouses with higher charges and – in particular – queues. As such, the vast majority of metal loaded-in with an intention to immediately sell on the LME will be attracted, through the incentive mechanism, to warehouses with queues. Warehouses without queues are generally limited to traditional storage business per Section 5.2.2.1.

This effect, combined with the fact that warrants in non-queued warehouses generally do not float per Figure 18, ensures that the vast majority of warrants used in LME settlement are located in warehouses with queues, and that the LME settlement price reflects a consequent discount pursuant to Section 5.4.1.

##### 5.2.2.2.4. Warrant values

As set out in Section 5.4.1, the value of a warrant will be reduced by the frictional costs of converting that warrant to free metal – and, in general, every factor which allows a warehouse to pay an incentive to the party loading-in represents also a frictional cost to the buyer of a warrant. As such, in general, the greater the incentive paid, the greater the discount between the resultant warrant and the price of free metal.

This is entirely consistent with the economic principles of an in-warehouse contract with delivery at seller's option – in general, a seller will always provide the lowest-value warrant in delivery, which will ensure that the LME price will always relate to the worst warrant in the network. Any seller providing higher-value warrants through clearing will not capture the incremental value of that warrant via the LME sale mechanism, and so would be acting in an irrational economic manner.

#### 5.2.2.3. Delayed LME warrant sale

In certain circumstances, a metal owner may wish to store metal for a given period of time (per Section 5.2.2.1) and then sell the metal on the LME (per Section 5.2.2.2)[27]. In this event, the metal owner will wish to benefit from low rents during its period of ownership, but then capture the incentive just prior to delivery of the warrants on the LME, funded by the charges paid by the acquirer of the warrant.

This will generally be achieved by the metal owner entering into a combined agreement with a warehouse (likely a warehouse with queues, given its ability to offer the greatest level of incentive pursuant to Section 5.2.2.2.1), whereby discounted rent will be charged up until the date of warrant transfer, and an incentive paid on that date[28].

#### 5.2.2.4. Immediate OTC warrant sale

Rather than creating a "discount" warrant and selling via the LME, a metal owner can instead create a higher-value warrant at a warehouse without queues, and with low rent and FoT charges. The premium for this warrant cannot be realised through a sale on the LME, but this can be achieved in the OTC warrant sale market. Ultimately, this converges towards free metal[29]

This mechanism is crucial, in that it maintains economic alignment between incentive offered and the warrant discount. If a queued warehouse (which, by definition, creates discounted warrants) is not offering a sufficient incentive to attract metal, then a rational metal owner would instead create a higher-value warrant and capture the premium through the OTC market.

## 5.3. Global metals flow

This analysis will concentrate on the flow of LME-standard metal specifications (aluminium ingots, copper cathodes etc), as set out in Figure 19. Precisely the same set of market dynamics apply at each level of the LME value chain, both upstream and downstream (ores, concentrates, shapes, end products), with an appropriate conversion premium or discount.

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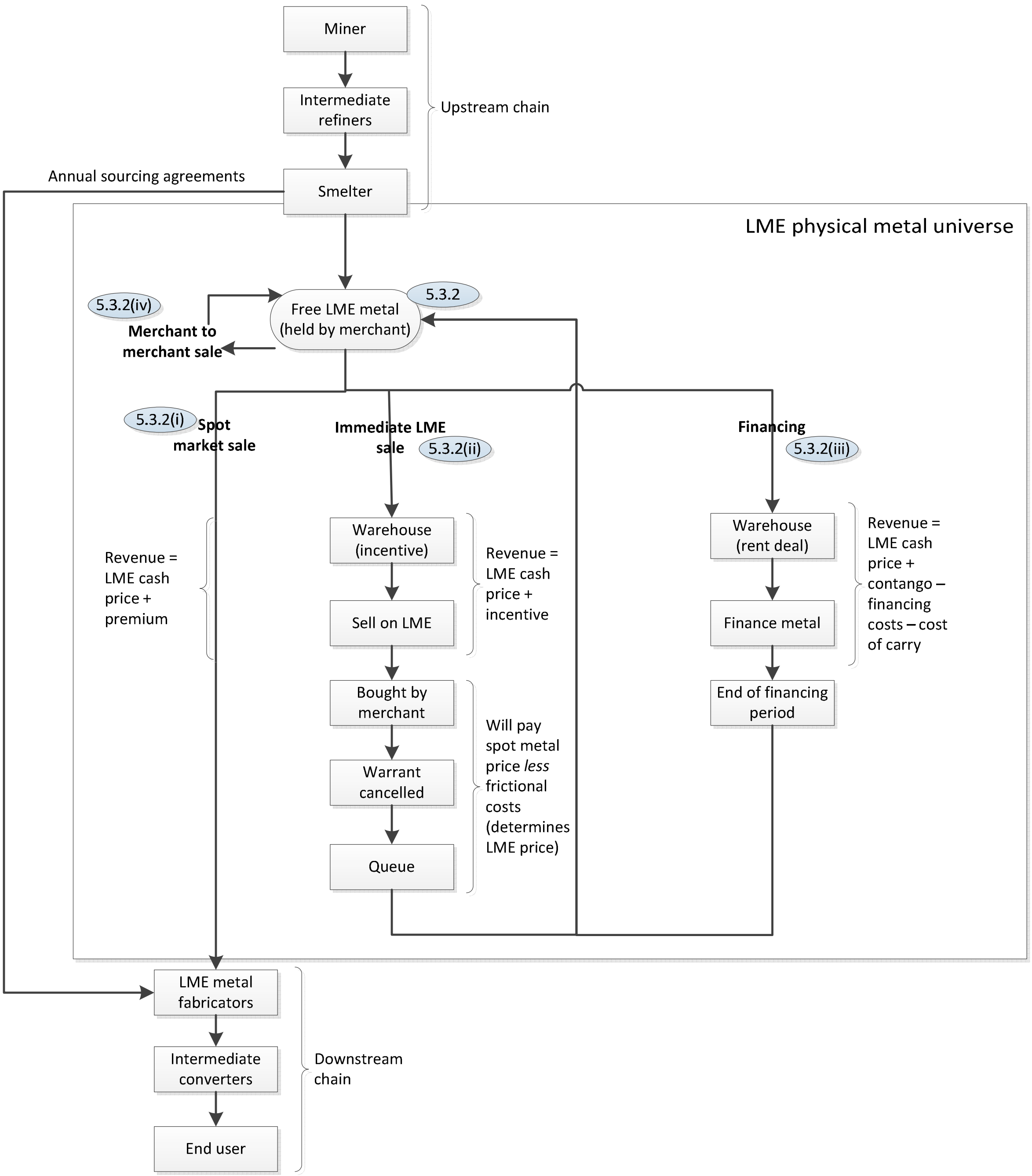
[27] This is common in the event of a forward sale, e.g. the metal owner sells forward on the LME for three months, stores the metal during this period to capture the contango, and then delivers warrants on the settlement date

[28] The cashflows may, of course, be netted, via an incentive reduced by the amount of rent during the discount period, all subjected to a time value of money adjustment

[29] Theoretically, if metal were loaded-in to a warehouse with no queues, no rent charge and no FoTs, it should be worth the same as free metal – while this will never happen in principle, it illustrates the convergence between high-quality warrants and free metal, and hence the convergence between the "warrant premium" and the "producer premium" for free metal

**Figure 19: Global metals flow**


Miner
Intermediate refiners
Upstream chain
Annual sourcing agreements
Smelter
LME physical metal universe
5.3.2(iv)
Merchant to merchant sale
Free LME metal (held by merchant)
5.3.2
5.3.2(i)
Spot market sale
Immediate LME sale
5.3.2(ii)
Financing
5.3.2(iii)
Revenue = LME cash price + premium
Warehouse (incentive)
Sell on LME
Revenue = LME cash price + incentive
Bought by merchant
Warrant cancelled
Queue
Will pay spot metal price less frictional costs (determines LME price)
Warehouse (rent deal)
Finance metal
End of financing period
Revenue = LME cash price + contango – financing costs – cost of carry
LME metal fabricators
Intermediate converters
End user
Downstream chain

## 5.3.1. Overview of metals flow

The majority of metal flows from producers to fabricators via long term (generally annual) supply arrangements. Typically these arrangements will be referenced to average LME prices plus an agreed premium[30]. Although the physical metal will never pass through the LME network or LME warehouses, the balance of trade does impact LME volumes and prices through the hedge which will likely be transacted by the counterparties to hedge their LME price risk.

[30] The premium will comprise the "free metal" premium over the LME price, adjusted for a "conversion premium" reflecting whether the product is less refined (e.g. concentrates) or more refined (e.g. metal sheet) than the benchmark LME contract shape

Because consumers will typically under-procure through long term contracts (given the danger of sourcing too much metal and being left with capital-inefficient inventory), and because many metals (most notably, aluminium) are globally over-produced, a certain amount of production will be available in the spot market. In general, this will be sold by producers to merchants[31], generally through a tender process in which merchants are asked to bid for the metal. The bids submitted by the merchants will be based on the price they expect to realise in the free LME metal market, less their expected profit margin.

### 5.3.2. The free LME metal market

At the core of the economic system is the choice faced by a merchant holding free metal in the market. In broad terms, there are four routes which can be followed, as shown in Figure 19:

i. The metal can be sold to a physical user, which will be looking to "top-up" annual contracted deliveries in the spot market.

   As a general observation, purchase from a merchant is the standard route by which physical users obtain their spot metal. Even when queues were not part of the market, the additional customer service provided by the merchants (in particular, ability to source metal of a given brand in a given location, and with all administration such as customs formalities completed) adds significant convenience, compared with the uncertainty to a consumer of directly buying LME contracts and taking LME warrants.

ii. The metal can be financed. This is a potentially attractive trade in a contango market, and where financing can be cheaply sourced from the banking sector (particularly if the merchant is part of a broader banking organisation). In this case, the merchant will look for "traditional" warehousing capabilities as set out in Section 5.2.2.1.

   Once the period of financing has come to an end, the metal will once again be free, and the merchant will again be faced by the same set of options as to how to use the metal. Alternatively, if the merchant knows that the metal will be sold on the LME at the conclusion of the financing, then the metal could be loaded-in to a warehouse with queues under a rent agreement for the financing period, as described in Section 5.2.2.3.

iii. The metal can be sold on the LME. In this scenario, a discount price will be achieved on the LME in comparison to the value of the free metal. As such, the merchant will first load the metal into a warehouse in exchange for an incentive. The resultant warrants will then be sold on the LME, with the total revenue from the trade being the LME cash price plus the warehouse incentive.

   The key question then arises as to the nature of the party on the other side of this trade, i.e. the profile of those players who accept warrants in settlement on the LME, knowing that these will generally be low-value warrants subject to queues. The answer is that, in general, those taking delivery of warrants are also merchants. These merchants are happy to take these warrants, because they accept that the LME price is a discount price – the question is whether, on any particular day, the discount is greater or less than the frictional costs of obtaining free metal from the warrant[32] – such modelling (which merchants undertake on a day-to-day basis) will underpin the merchant's decision both to accept warrants in settlement, and to cancel those warrants and join the queue (or to reverse that decision via re-warranting).

   Once a merchant's metal has reached the front of the queue and becomes free metal, the merchant will again face the same set of options as to how to sell that metal. It is entirely possible that the most economically rational route will be to finance (in which case the metal will be loaded back into a warehouse, although possibly an off-LME storage facility), or to sell the metal on the LME (in which case the metal will be loaded back into an LME warehouse, with an incentive being taken)[33] . The scenario where an incentive is taken illustrates well the relationship between rents / FoTs and incentives – having paid rent in the queue, and FoT to withdraw the metal from the warehouse (which fund the incentives paid to the original metal owner who originally loaded-in the metal), the merchant then recaptures this expense through its own incentive payment from a new warehouse.

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[31] Most frequently, this will be a specialist merchant (such as Glencore or Noble) or a bank acting as a merchant. However, increasingly, producers may act as merchants in respect of their own metal production (particularly those which are part of integrated groups)

[32] The frictional cost is further analysed in Section 5.4.1, and includes the time cost associated with waiting in the queue – however, in a contango market, free metal will be worth more in future, and so this is not necessarily problematic for the warrant purchaser. Indeed, in this manner, the business of cancelling warrants and waiting in queues includes an element of metal financing

This economic decision on the part of the merchant provides an explanation for the so-called "yo-yo trade", under which metal is loaded-out of one warehouse and into another. Ultimately, it is the right of a metal owner to decide what to do with free metal, and there is an economically rational explanation for this load-out / load-in behaviour.[34]

An important observation in respect of this course of action is that it is generally regarded as the "backstop" by the merchant[35]. In particular, when bidding for producers' metal in tendering processes, merchants will often justify their bids (from an internal risk management perspective) on the basis of the profit achievable through this route. Merchants bidding on metal will often contact warehouses prior to submitting the bid, requesting indicative premiums which could be paid in the event that the merchant was successful in obtaining the metal. In this manner, the warehouse bid could be argued to have an important information effect for the market.

It should also be noted that those accepting warrants in queues will generally be participating in a form of metals finance, in that queued metal will be backed by credit facilities. As such, although the presence of queues is not a prerequisite for the financing trade, the existence of financing does impact the willingness of market participants to accept queued warrants in settlement.

iv. The metal can be on-sold to another merchant. Given that both merchants will look to book an immediate margin, such trades are generally not a first choice, and would generally take place between two regionalised merchants in time of net imbalance. Such trades may be a transfer of free metal, or an OTC transfer of warehouse warrants – as set out in Section 2.1.8 , the "quality" of the warrant (defined by the specific characteristics of the underlying metal, and the frictional cost to the buyer of accessing the underlying metal) will determine the premium to be paid over the LME price.

Economically, the merchant will always follow the route which yields the highest price for the free metal[36]. As such, economic theory suggests that the four prices must be in balance. In particular, this illustrates why warehouse incentives are a good proxy for physical metal premiums, as the warehouse effectively competes for metal with physical users, and so the premium which each pays over the LME price would logically be equal. However, it is important to note that this does not imply that warehouse incentives cause premiums – rather, the warehouses are part of a competitive metal ecosystem, and the warehouse needs to set its premiums at a level where it can compete for metal against other users.

As such, the spot metal market can be analysed as a set of buyers and sellers, with the market-clearing price being derived as in any other efficient economic system. The valid question to ask is whether any of the sources of either supply or demand appear to be artificial, which may serve to suggest that the price formation mechanism is economically inefficient. Analysing each in turn:

i. Merchants (as a source of supply and demand) – in the opinion of the LME, the merchant landscape is extremely competitive, and is characterised by intense competition for both metal sourcing and supply agreements. Although the merchant sector has been subject to both horizontal and vertical consolidation in recent years, these transactions have been subjected to scrutiny by competition authorities in the ordinary course.

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[33] It is also possible that, rather than going through the logistical steps of loading-out from one warehouse and loading-in to another, the metal user agrees to re-warrant with that warehouse, in exchange for an incentive

[34] There is, however, a secondary consideration, namely that this type of behaviour perpetuates queues at warehouses under the current load-out rules. This is a fundamental driver for the Proposal. However, the intention is not to impede metal owners' right to use warehouses, but rather to address the existence of queues at those warehouses

[35] Arguably consistent with the stated role of the LME as the market of ultimate demand

[36] Most merchants would claim that they will accept a slightly lower price from a physical consumer, on the basis that consumers represent their long term clients, and will be prioritised accordingly. However, anecdotal evidence from consumers suggests that the merchant's acceptable consumer discount is small

ii. Physical metals users (as a source of demand) – it is difficult to argue that consumers are not a valid source of market demand.

iii. Financing (as a source of demand) – it is reasonable for consumers to make the argument that financing deals act as a distortive source of demand. However, it is a well-established market principle that, in the absence of specific regulation, players cannot be excluded from purchasing a commodity simply because they wish to store it, rather than use it. Accordingly, it is not the role of the LME to exclude financing players from participation in the metals markets.

iv. Warehouse incentive + LME sale (as a source of demand) – again, the argument has been made (primarily by physical metals consumers) that the availability of a warehouse incentive creates an artificial demand dynamic in the market. However, this logic is hard to sustain, because (assuming rational behaviour by the warehouse companies) the incentive must be funded by charges levied on the buyer of the warrant – and (assuming rational behaviour by the merchant buying the warrant) the price paid on the LME must discount for these costs. So any increase in the warehouse incentive would logically be reflected by a reduction in the LME price[37], and so it is hard to see how a bid at an all in-level (warehouse incentive + LME sale) represents an artificial source of demand in the market

## 5.4. Market premiums

### 5.4.1. Drivers of premiums

In understanding metals premiums, the key observation in respect of the market is that the LME price is derived from the spot metal price, not vice versa. As set out in Section 5.3.2, the LME's cash price is primarily formed by the balance between merchants selling their free metal onto the LME, and merchants accepting LME warrants through clearing. But in both of these cases, the merchants' economic modelling treats the free metal price as an exogenous factor, and derives the "appropriate" LME price from this, taking into account warehouse incentives (for selling merchants) and frictional costs of obtaining free metal (for buying merchants) – as such, the more logical analysis is that the free metal price is set by the market, the LME price is derived from it by well-established modelling, and the premium represents the difference between the two. Because the LME provides the most transparent price discovery mechanism, it is tempting to see the LME price as the exogenous figure, and the free metal price as being derived from it (again, with the premium being the difference between the two) – however, based on the LME's analysis, this is not the case.

**Figure 20: Relationship between free metals price and LME price**

| | | | | |
|---|---|---|---|---|
| Value of LME warrant | = | market-assessed "free metal" price | | |
| | *less* | Average brand differential | *"Ordinary course" warrant discount* | *Free metal premium* |
| | *less* | Average shipping cost | | |
| | *less* | FoT | | |
| | *less* | Rent payable in queue | *"Queue-related" warrant discount* | |
| | *less* | Opportunity cost of queue wait | | |

As such, the most logical method of understanding the premium is to work through the analysis which merchants themselves apply to the market. As set out in Figure 20, there is always a valid basis for a premium between an in-warehouse contract and the value of the free commodity. However, two of the terms in the equation are driven by the existence of queues and ancillary factors (e.g. the rent charged while waiting in those queues), and it is entirely valid for the LME to consider whether these factors should be addressed in order to narrow the premium.

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[37] On an aggregate basis, given that the LME price reflects the average of the warrants expected to arise in settlement, which broadly correspond to the worst warrant in the LME system. Additionally, and importantly, this analysis applies in the economic long run – however, as further set out in Section 5.4.4.1, it is not clear that the two factors would move over the same timescale

In this regard, it should be noted that the "opportunity cost of queue wait" may be ameliorated by the ability of the metals owner to finance the metal cheaply and lock-in the contango during the waiting period. However, this term is also user-dependent – a merchant with positions throughout the queue and ready access to finance may consider the wait to be less problematic, whereas a fabricator with an immediate need for metal and no ready finance would consider it to be unacceptably onerous. However, both players would prefer to have free metal (which could then be consumer or financed on much more attractive storage terms), rather than being locked into a queue.

### 5.4.2. Premium arbitrage mechanism

A number of comments have been made to the effect that the arbitrage mechanism on the LME has ceased to function effectively. This is the fundamental principle underpinning price convergence on a physical market, and is the process by which – if the LME cash price is perceived to be out-of-alignment with the exogenous free metal price – arbitrageurs will either buy or sell cash metal on the LME in an attempt to profit from the perceived misalignment, with the result that the LME cash price will move accordingly and re-converge to the appropriate level, derived from the free market metal price per Figure 21.

The sell arbitrage (if the LME cash price is considered to be too high compared to the price of free metal) is still readily-accessible[38], but it is true that the buy arbitrage (if the LME cash price is considered to be too low compared to the price of free metal) is complicated by the presence of the queues, which must be factored into the economics of the arbitrage trade[39]. However, every merchant who accepts warrants through LME clearing is, in effect, conducting this arbitrage. It is fair to suggest that the arbitrage is less perfect, because there are unknown terms (in particular, the development of the forward curve over the lifetime of the queue) which must be guessed by the arbitrageur at the time of warrant acceptance. But the trade is clearly being conducted, and the premium is rationally explicable via the mathematical relationship presented in Figure 21.

### 5.4.3. Impact of premiums on the market

To the extent that the analysis in Section 5.4.1 above is accepted – and particularly that the impact of premiums is not to inflate free market prices, but rather to cause the LME price to trade at a discount to an exogenously-set free market price – then the question arises as to whether a problem really exists in the market. While there is no demonstrable market failure, it is clear that the system is inefficient in terms of providing a visible and transparent price.

In particular, it is the LME price which is accurately discovered via the LME's trading mechanisms, and propagated via the LME's market data offerings. On the other hand, the premium (and hence the free metal price, which despite being the primary driver can only be observed by summing the LME price and premium values) is collected via survey pricing based on transactions reported by market participants. This process is, by definition, imprecise and potentially inaccurate, and the resultant figures are treated with suspicion by market participants. This then gives rise to a number of difficulties for metals market participants:

i. In the absence of quality data on premiums, annual contract negotiations between metals market participants are generally inefficient and underpinned by arguments as to the "real" value of the premium.

ii. In the absence of a true observable premium value, the premium component of the price is difficult to hedge[40] – so, even for a converter which is able to pass on the premium, a time risk still exists if the premium changes during the course of the conversion. This is particularly the case for public companies subject to more stringent hedge effectiveness accounting criteria.

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[38] Buy free metal, deposit in a warehouse (including receipt of incentive), and sell the warrant in a cash LME transaction. This relies on warehouses offering incentives consistent with the "free metal" premium, but economically this will be the case per Section 5.3.2

[39] Buy a warrant in a cash LME transaction, cancel the warrant, wait for the free metal, sell the free metal into the market

[40] It is not impossible – brokers will make markets for "all-in" metals prices, and the CME offers a contract based on the survey-priced Platts Midwest Aluminum Premium. However, these markets remain illiquid and opaque, with resultant wide spreads and inefficient hedging. Further considerations are presented in Section 6.4.1.2

iii. Merchants are perceived to exercise too much power in the spot market, because they demand a premium from physical metals consumers who have little ability (besides reference to survey prices) to argue that the correct market premium should be lower. Arguably, this should be addressed by consumers running a competitive request-for-quote process between the merchants – but, consumers would argue that the "backup" option for all merchants is to load the metal into a warehouse in exchange for an incentive, and that (given the dominance of a particular warehouse – generally a warehouse with queues – in a particular geographical area), all merchant quotes to customers tend to price in a similar level of warehouse incentive bid.

iv. When negotiating with downstream customers who are not well-experienced in the metals markets, and particularly in respect of goods where metal is not the primary component, it is difficult for manufacturers to "pass on" the premium component to the end user, with resultant pressure on profit margins when premiums increase.

v. Arguing for full balance sheet credit for the value of stocks can be difficult, given the preference of auditors to apply the LME base price.

Given the above considerations, it seems entirely valid that the LME seek to take action to address the factors driving premiums as a proportion of the "all-in" metal price.

### 5.4.4. Potential impact of reduced premiums

To the extent that the factors (in particular, warehouse queues) driving premiums are addressed, then the economic analysis presented above would tend to imply that – ceteris paribus – the "all-in" metals price should remain constant, with the premium falling as a proportion, and the LME price rising as a proportion. However, it is important to consider the practical impacts of any proposal which led to a fall in premiums.

#### 5.4.4.1. Short term vs. long run economic behaviour

The economic analysis presented in Section 5.4.1 – suggesting that a fall in premiums should be matched by a rise in LME price – would appear to be a valid assessment over the economic long run. However, as with any economic system, the metals market cannot be expected to react instantaneously to reflect economic theory. In particular, it is key to note that the underpin for the premium appears to be the incentive offered by the warehouses. To the extent that warehouses immediately drop the levels of incentive they offer (because, for example, they feel that their queues will disappear due to regulation, and hence they are not guaranteed the revenue to recover the incentives), the compensating increase in the LME price would not occur until the average quality of warrants used in LME settlement increased[41]. As such, it is entirely possible that the all-in price of metal falls in the short term, with consequent impact for both producers and stockholders.

Indeed, this effect could be further compounded by the potential short term effect on the LME price of greater quantities of metal being discharged from Affected Warehouses into the market. From a pure analytical perspective, financing demand (subject also to Section 5.4.4.2) should prevent this becoming pure supply to physical end-users. However, in the short run, it is entirely possible that the LME price would further fall as the market anticipated a wall of supply, thus further compounding short term cashflow issues for producers.

#### 5.4.4.2. Impact on the financing trade

A further issue which has been raised by a number of respondents to the Consultation is the impact of a premium decrease on the financing trade. On an initial analysis, a decrease in premium should not ipso facto impact the structure of the price curve, and the financing trade should continue to stand on its own economic merits

[41] Arguably, there would be an immediate increase in perceived warrant value if the queues were expected to dissipate more quickly – however, the full effect would not be seen until warrants from higher-quality warehouses began to appear in clearing

However, the issue is more one of premium volatility during the lifetime of the financing trade. If the market expects that premiums will fall as the result of an LME policy initiative, then the economics of the vanilla carry trade[42] are at risk of the premium falling during the financing period[43].

If this uncertainty reduced the demand for metals financing, then the role of financers as a source of spot metal demand could diminish, which would likely (by the removal of a bid from the market) cause the spot metal price to fall further, again with impact for producers and stockholders.

[42] Buy free metal at LME spot + current premium, hedge to lock-in the LME contango, sell free metal at LME future + future premium
[43] Perhaps ironically, this aligns metals financers with physical users in terms of desire for a premium hedging solution

# 6. ANALYSING AND ASSESSING CONSULTATION RESPONSES

## 6.1. Framework for analysis of Consultation responses

As would be expected given the complexity of this topic, and the broad variety of differing views currently prevalent in the market, any analysis of Consultation feedback will necessarily require placing some form of structure around the various responses. This is presented in the form of a flowchart in Figure 21, with references to the section of this report analysing each key question in further detail.

## 6.2. Is there a problem with the system?

No respondent suggested that there is not some form of problem with the LME system – and, as such, no respondents have suggested that action should not be taken.

As set out above, those who perceive themselves as benefitting from the current system would likely, in the absence of broader market noise, have said that no problem exists. However, given the degree of obvious disquiet in the market, such players have recognised from a tactical perspective that asserting the absence of a problem is unlikely to be viewed as credible. As such, these respondents have instead chosen to acknowledge the existence of a problem, but argue that it is not related to the existence of queues, per Section 6.4.

## 6.3. Is there "all-in" price inflation?

As set out more fully in Section 5.4.1, the LME's economic analysis is that the impact of queues and incentives has been not to change the absolute price of metal, but rather to depress the LME price relative to the absolute price, and consequently to increase the contribution of the premium to the absolute price.

In general, responses to the Consultation have not presented a detailed economic analysis of the drivers behind metals prices, or offered a detailed assessment of the effect of warehouse behaviour on the absolute metals price. Some responses (in particular, those from consumers) have offered general statements as to the perception of an inflated metals price, but no substantive analysis has been advanced to prove that the views expressed in Section 5.4.1 are incorrect. Additionally, it should be remembered that those favouring more stringent rulemaking are likely to cite a market price failure in order to add weight to their requests.

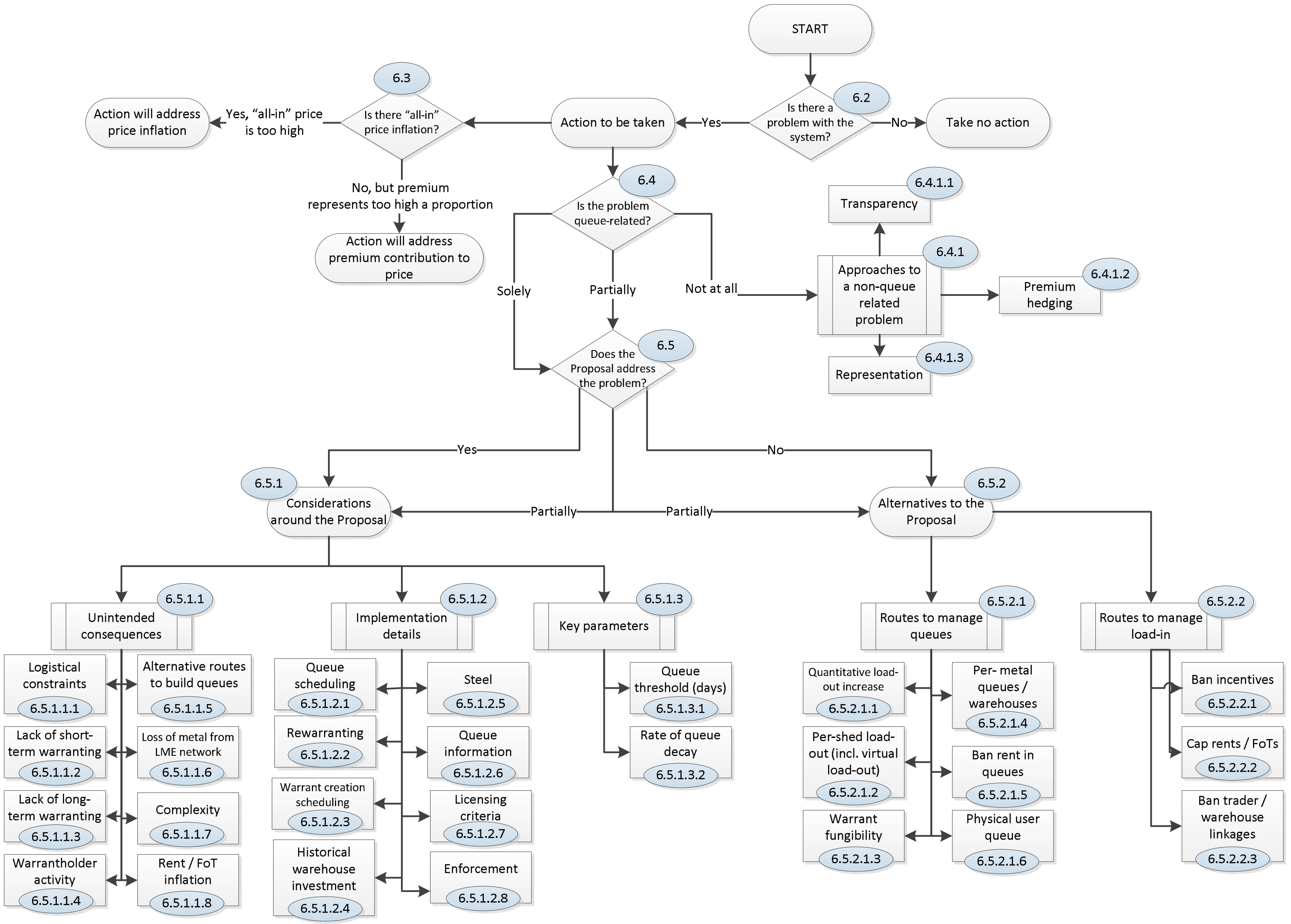
In any event, addressing the warehousing issues remains a valid approach under either scenario – either to address all-in price inflation if this is believed to exist (which, for the avoidance of doubt, is a view which the LME does not support), or to reduce the issue of premium contribution to the price per Section 5.4.1.

## 6.4. Is the problem queue-related?

The majority of respondents suggested that the current problems are either entirely or partially queue-related. Those who responded that the problems were entirely non-queue related appear in general to be those players who either benefit directly from the queues (e.g. warehouse operators collecting rents from queues), or businesses which extract a perceived benefit from the queues (e.g. producers who load-in to warehouse in exchange for premiums, and believe such premiums to be achievable only in a warehouse queue environment). As such, and given the absence of non-conflicted respondents suggesting that the problem is not queue-related, it seems fair to conclude that queues do play a role in the problem.

To the extent that respondents have attempted to justify the assertion that queues are not the key problem, other issues have been identified, namely transparency, premium hedging solutions and representation. These are considered in greater detail below – as a general observation, these are all approaches which are valid of consideration (and, as such, should be taken forwards by the LME in any event), but the challenge which has been posed to respondents in discussion has been to articulate how these suggestions can address the core warehousing issues, rather than simply being useful parallel initiatives. In general, no convincing responses to this question have been provided.

## Figure 21: Response analysis flowchart


START
Is there a problem with the system?
6.2
No
Take no action
Yes
Action to be taken
Is there "all-in" price inflation?
6.3
Yes, "all-in" price is too high
Action will address price inflation
No, but premium represents too high a proportion
Action will address premium contribution to price
Is the problem queue-related?
6.4
Solely
Partially
Not at all
Approaches to a non-queue related problem
6.4.1
Transparency
6.4.1.1
Premium hedging
6.4.1.2
Representation
6.4.1.3
Does the Proposal address the problem?
6.5
Yes
No
Partially
Partially
Considerations around the Proposal
6.5.1
Alternatives to the Proposal
6.5.2
Unintended consequences
6.5.1.1
Implementation details
6.5.1.2
Key parameters
6.5.1.3
Routes to manage queues
6.5.2.1
Routes to manage load-in
6.5.2.2
Logistical constraints
6.5.1.1.1
Alternative routes to build queues
6.5.1.1.5
Lack of short-term warranting
6.5.1.1.2
Loss of metal from LME network
6.5.1.1.6
Lack of long-term warranting
6.5.1.1.3
Complexity
6.5.1.1.7
Warrantholder activity
6.5.1.1.4
Rent / FoT inflation
6.5.1.1.8
Queue scheduling
6.5.1.2.1
Steel
6.5.1.2.5
Rewarranting
6.5.1.2.2
Queue information
6.5.1.2.6
Warrant creation scheduling
6.5.1.2.3
Licensing criteria
6.5.1.2.7
Historical warehouse investment
6.5.1.2.4
Enforcement
6.5.1.2.8
Queue threshold (days)
6.5.1.3.1
Rate of queue decay
6.5.1.3.2
Quantitative load-out increase
6.5.2.1.1
Per- metal queues / warehouses
6.5.2.1.4
Per-shed load-out (incl. virtual load-out)
6.5.2.1.2
Ban rent in queues
6.5.2.1.5
Warrant fungibility
6.5.2.1.3
Physical user queue
6.5.2.1.6
Ban incentives
6.5.2.2.1
Cap rents / FoTs
6.5.2.2.2
Ban trader / warehouse linkages
6.5.2.2.3

An additional argument made in this respect is that the queues are actually helpful to market stability, because the impact were all cancelled metal to enter the market simultaneously would be significant in terms of metals price (most notably for aluminium). As set out in Section 5.4.1, the long run economic impact would be expected to be neutral – but it is a valid consideration that, in the short term, there may be disruptive impacts from the release of large quantities of stored metal into the market. This is a consideration in respect of proposals for a very large increase in quantitative load-out rate (per Section 6.5.2.1.1), and a benefit of the more phased approach of the Proposal.

## 6.4.1. Approaches to address a non-queue related problem

### 6.4.1.1. Transparency

The need for greater LME market "transparency" has been cited by a number of respondents, relating mainly to the request that the LME publish a Commitment of Traders ("COT") report, which would show the split of market open interest ("MOI") by the nature of the ultimate holder of such MOI[44].

In itself, transparency does not address any of the issues around warehouse queues or premiums. To a large extent, this request arises from the debate referenced in Section 6.5.1.3.1, namely the market participants whom the LME should serve. It is interesting to note that merchants, investment banks and funds will feature prominently in any MOI reporting – both producers and consumers (whose views on the Proposal are otherwise strongly divergent) feel that this information would be strategically useful, as it will allow them to point to the role of "middle-men" and speculators in the market as an explanation to their stakeholders for price movements which have adversely affected their businesses.

Notwithstanding the potentially cynical rationale behind these requests, and the fact that the information will undoubtedly be used by market participants to level further criticism at the LME[45], the request for transparency is a reasonable one, given especially the fact that such information is already produced by comparable exchanges

***Recommendation:*** initiate a separate project to deliver an LME open interest reporting solution by category of participant, to be announced in the Final Notice, but noting that it represents a logically distinct conversation to warehousing

### 6.4.1.2. Premium discovery and hedging solutions

A common theme in Consultation responses (both from those supporting action, and those opposing), has been the view that the LME should be more proactive in offering solutions allowing market participants to accurately measure, trade and hence hedge premiums. It should be noted that such solutions could be helpful for the market regardless of whether the problems are queue-related – however, as this solution has been suggested primarily by those who argue that the problems are not queue-related, the solution is classified in this branch of the analytical response flowchart.

Given the analysis in Section 5.4.1, namely that the economic issue is one of premium rather than absolute price, it would seem logical that premium contracts would provide a solution to this issue. However, even if a perfect hedging solution could be found, the system would still be less than optimally efficient, given that the size of the premium would require every participant looking for "all-in" price protection to separately hedge the LME price and premium components, which would increase transactional overheads. As such, even the delivery of a perfect hedging solution would not seem to obviate the requirement of addressing the underlying warehousing issues. However, to the extent that a meaningful premium contract could be constructed, then this could aid the market while the warehousing issues are addressed – and, given that premiums would still exist for valid reasons even in the absence of warehousing issues – may also form the basis of an attractive long term market contract.

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[44] More completely, the requests received are for a split by ultimate holder of market open interest, exchange open interest, warrants and queued (cancelled) warrants

[45] It is to be expected that physical players will ask the LME to limit the participation of merchants / speculators in the market on the basis of MOI data, claiming that the effect is to disrupt market liquidity and price discovery. However, comparable exchanges publish such data and reveal a significant participation of non-physical users, without significant adverse consequences

In respect of the mechanisms of potential premium discovery, the question is primarily one of practicality. In general, premium prices can be derived in one of two ways:

i. Survey prices (the best-known such survey price being the Platts Aluminum Mid-West Premium). Such survey prices are compiled by Price Reporting Agencies ("PRAs"), generally on the basis of unverified transaction reports. While such figures are viewed as being directionally useful in tracking premiums, a number of respondents have indicated that the voluntary and unverified nature of reporting calls into question the reliability of this data. In particular, any financial contracts referenced to such prices would inherit such underlying unreliability.

   To the extent that such drawbacks are considered acceptable, then survey-priced products can be used both to quantify premiums in the spot market, and also to provide a hedging solution via cash-settled futures contracts. This approach has already been offered by the CME, in the form of its Platts Aluminum Midwest US transaction contract. However, this has seen very limited usage by the market.

   In general, the LME has not pursued the use of survey-priced or cash-settled[46] contracts, preferring the reliability of its current physically-settled contract suites[47]. The general question of whether to introduce selected survey-priced, cash-settled contracts represents a strategic question for the LME – and, in the context of this work, it is valid to consider the role of a cash-settled premium contract. However, given the inevitable concerns over price discovery, it does not currently seem that this approach will offer a comprehensive solution to the need for premium discovery and hedging.

ii. Physically-settled contracts – such contracts would rely on the use of warrant "classes", with each class representing a combination of metal, location, queue length, warehouse rent etc. This would allow the creation of either an "all-in" forward contract (which would be settled by a cash payment from the buyer against the delivery of a warrant from a defined warrant class by the seller), or a "premium warrant swap" forward contract (which would be settled by the delivery of a warrant from a lower-quality class by the buyer, against the delivery of a warrant from a higher-quality class by the seller).

   While this approach addresses a number of the concerns around survey-priced products, its practical implication is predicated on a liquid supply of warrants in each of the underlying classes[48]. In current conditions, it would appear difficult to guarantee such liquidity, given that – as set out in Figure 18 – the effect of the warehousing issues has been to "lock up" attractive warrant classes. As such, the construction of these contracts would itself be aided by addressing the warehousing issues.

The final, and most significant, difficulty associated with premium hedging solutions is the lack of willingness from the broker community to support such products, given the attractive spreads which can be charged to clients to transact such trades in the opaque OTC market. Previous attempts to engage with the LME brokers on this topic[49] have indicated the strong level of difficulty in this respect. As such, any such introduction will require the support of end users, regulators or both.

***Recommendation:*** commit to a full investigation of the feasibility of premium hedging products, but affirm the Board's view that such a solution represents a parallel (and complementary) workstream to addressing the core warehousing issues

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[46] With the exception of cash-settled secondary contracts (e.g. LMEminis), settled to prices discovered by the trading of primary physically-settled LME contracts

[47] There is perhaps some degree of irony here, in that the physical settlement characteristics of the LME's current contract suite require the maintenance of a physical warehouse network, which is currently causing concerns in respect of the contract's pricing mechanism. However, it remains the view of the LME that, in the long term, physically-settled contracts are superior in respect of price discovery

[48] Indeed, it is likely that such liquidity would need to be codified by per-class lending guidance, to avoid short squeezes of any particular warrant class in respect of which a forward contract has been created

[49] For example, at the April 2013 User Committee

### 6.4.1.3. Representation

It has been noted by a number of participants in the Consultation that certain elements of the physical metals community are not well-represented in the structure of the LME. There appear to be two specific items in this respect:

i. Committees, and specifically the concern that LME committees do not feature sufficient representation from the physical community – and, in particular, from consumers of metal. As demonstrated by the analysis in Figure 23, this is a partial picture – in general, the metal-specific Committees do have strong representation from miners, converters and consumers. However, it is fair to say that the most relevant committees in respect of this issue (in particular, the User Committee and the Warehousing Committee) do not feature such a strong level of representation.

   As highlighted in Sections 2.3.2, 2.3.3 and 2.3.4, the Committees do not have executive powers, and the LME Executive implements rulemaking in a manner which takes into account the needs of whole market, without being influenced solely by the views of the Committees. However, it is reasonable that the market will view the composition of these senior Committees as indicative of the LME's commitment to inclusiveness and market.

   ***Recommendation:*** restate commitment to engagement from all areas of the market. Establish a Physical Market Committee, with the Physical Market Committee Chairman (or other appointed member) sitting on the User and Warehousing Committees. Work with independent Chairmen of the User and Warehousing Committees to ensure full representation across the physical industry.

**Figure 22: Analysis of LME Committee representation – Metals Committees**

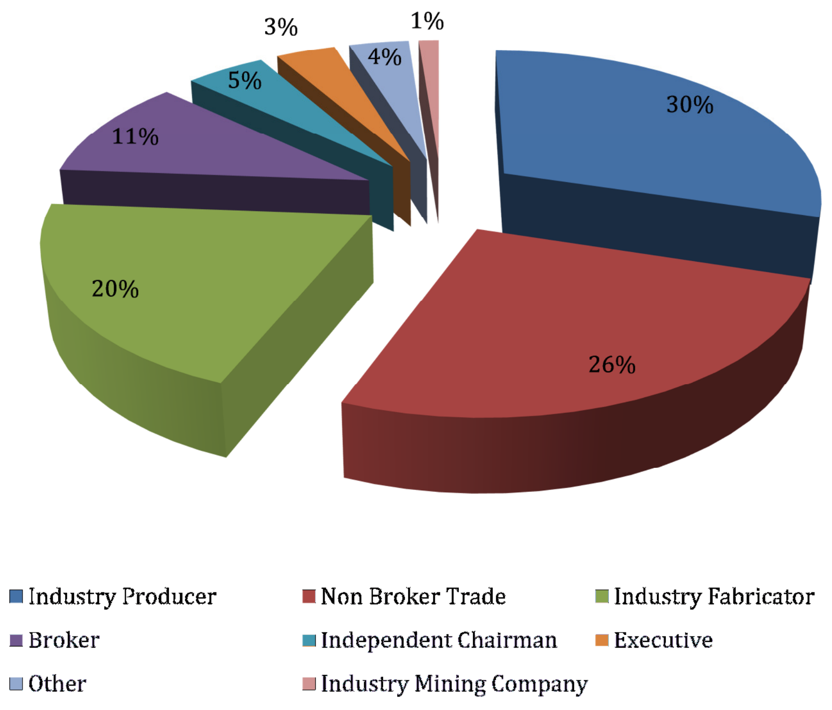


**Figure 23: Analysis of LME Committee representation – Warehousing Committee**

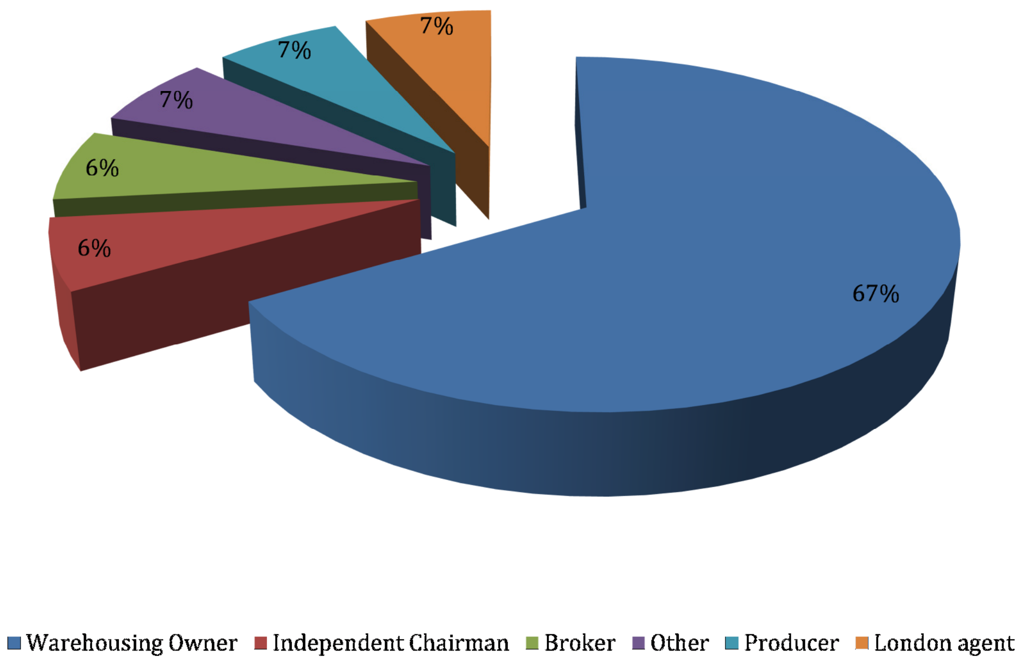
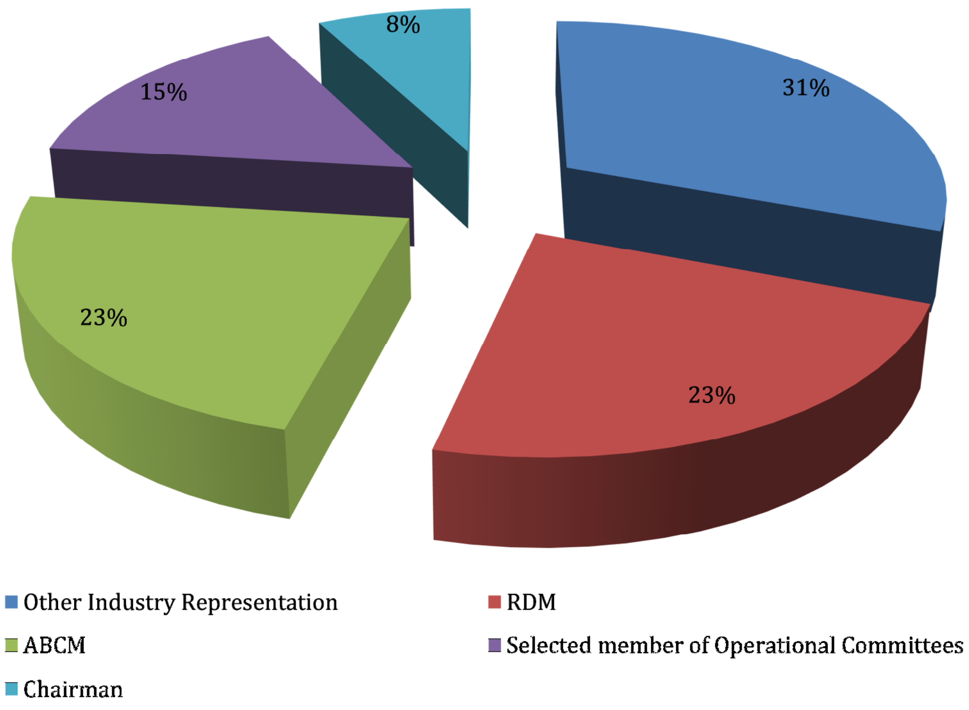

7%
7%
7%
6%
6%
67%
Warehousing Owner
Independent Chairman
Broker
Other
Producer
London agent

**Figure 24: Analysis of LME Committee representation – User Committee**


8%
15%
31%
23%
23%
Other Industry Representation
RDM
ABCM
Selected member of Operational Committees
Chairman

ii. Ongoing dialogue. A number of respondents have suggested that the LME has not historically engaged with all constituents on the topic of warehousing, and that this factor has exacerbated the frustration currently evidenced by the market.

To a certain extent, the LME needs to be careful to ensure that management's time is not entirely consumed by the debate on this topic – which, as explained at Section 4.3, is generally motivated by the self-interest of the participants. However, given the significance of this topic to the market at present, it is unavoidable that the LME will need to commit further management time to this issue, both to communicate the results of the Consultation, and to monitor ongoing market views.

***Recommendation:*** commit to an ongoing market dialogue over the coming year. In particular, meetings will be offered to all Consultation respondents (written and oral) to explain how their feedback was presented to, and analysed by, the Board. In addition, ongoing meetings will be offered to those who request these over the coming year, with all such feedback being raised at both the User Committee and the Board as a standing agenda item. Additionally, the Board should commit to a six-monthly Notice to the market, confirming that the Executive and Board continue to monitor the situation, and laying out any changes to the view of the Board in respect of the situation.

## 6.5. Does the Proposal address the problem?

To the extent that, per Section 6.4, respondents felt that the problem was entirely unrelated to the existence of queues, then it is self-evident that the Proposal (which targets queues) would not address the problem, and the issue would be more one of unintended consequences per Section 6.5.1.1.

For those respondents who felt that the problems were entirely, or at least partially, related to the existence of queues, then the key question becomes whether the Proposal, as currently formulated, is capable of addressing the problems which are perceived to exist.

In general, most respondents did feel that the mechanics of the Proposal would go at least some way towards alleviating queues and their consequent impacts. However, it is to be expected that most respondents who are not in favour of addressing the queue problem would have suggested that the problem is non-queue related per Section 6.4. As such, any respondents reaching this point in the flowchart will likely have a vested interest in seeing queues diminish as quickly as possible, with the result that such respondents would be expected to lobby for a more stringent approach to queue management, either through the parameters of the Proposal, or through alternative approaches.

### 6.5.1. Considerations around the Proposal

#### 6.5.1.1. Unintended consequences

As was made clear in the Consultation Notice, the introduction of any new rules has the potential to interfere with the normal operation of the market and hence cause unintended consequences. Respondents have identified a broad range of potential unintended consequences, which are assessed in this section. Unintended consequences have been highlighted by both those in favour of the Proposal, and those opposed to it.

##### 6.5.1.1.1. Logistical constraints

As expected, Affected Warehouse Companies do believe that the Proposal will give rise to logistical difficulties in respect of their warehousing activities.

In contrast to previous consultations (where the proposed action was a simple quantitative increase in load-out rate), it has clearly been more difficult for Affected Warehouse Companies to argue that implementation of the Proposal is impossible (given that, if they truly cannot increase load-out rates, they can simply stop taking-in new metals, and their load-out obligations will remain unchanged). As such, the arguments used by the Affected Warehouse Companies have been more subtle, and broadly suggest that, in order to achieve a higher load-out rate, the warehouse will need to impose more restrictive logistical conditions on those wishing to withdraw metal.

Central to this argument is the concept of "slots". In general, when a metal owner requests the withdrawal of metal, they will be given a "slot", typically a half-hour[50] window in which the truck provided by the metal owner must arrive at the warehouse for loading[51]. The logistical issues which may arise are broadly as follows:

i. **Reduced understanding around missed slots**. Given the potential barriers to trucks arriving at their destination on time, it is not uncommon for metal owners to miss their assigned slots. In general, warehouses claim that they attempt to accommodate missed slots. However, to the extent that load-out rates are increased, warehouses may first look to implement the enhanced requirements via a more strict approach to those collecting metals.

   This would appear to represent a fair comment from the warehouses, and it seems equitable that obligations are placed on the metal owner, as well as the warehouse. Clearly, this should not be applied in an abusive manner by the warehouses (e.g. by setting impossibly short slot times).

   From the perspective of the LME, a concern is that disputes between metal owners and warehouses on the subject of missed slots may, eventually, be escalated to the Physical Operations team. At present, such complaints are relatively rare, given the apparent willingness of warehouses to work with metals owners to resolve missed slot events bilaterally. Additionally, the approach of the LME has been to view the load-out requirements as "strict", with warehouses required to over-schedule deliveries in the expectation that a certain number of slots will be missed.

   To the extent that the LME prescribes, and the warehouses apply, a more rigorous set of rules, it is to be expected that more issues will come to the LME. This will necessitate a more formulaic entrenchment of rules.

ii. **Working hours.** The simplest approach for a warehouse to increase load-out is to add shifts to its load-out operation. This will result in some metals owners being assigned early-morning and late-night slots, which will be less desirable, given likely increased costs of logistics. In some city locations, trucking companies may refuse to provide trucks during hours of darkness due to fears over crime. Again, such issues have been broadly resolved bilaterally to-date, but it is to be expected that there will be more referrals to the LME, seeking clarification as to what constitutes "reasonable" working practices.

As such, there are three proactive responses which the LME should consider:

i. Emphasise to the market that those withdrawing metal have obligations, e.g. in respect of meeting slot times.

   ***Recommendation:*** clarify in the Final Notice that those withdrawing metals do have obligations, and will be held to such obligations in any dispute escalated to the LME.

ii. In respect of Affected Warehouses, state that – if increased load-out rates result in heightened complaints and disputes – the LME will work with the Affected Warehouse Operator and metals consumers to produce warehouse-specific guidance as to issues such as working hours. Although this will place additional burden on the Physical Operations team in the first instance, the limited number of currently Affected Warehouses (five) should minimise the work required.

[50] Slot lengths will vary depending on the specifics of port logistics

[51] This describes the "typical" logistical model of metal being loaded-out on a truck provided by the metal owner. In some cases, the warehouse provides trucking (as an extra-cost service), in which case all logistical responsibility falls on the warehouse, and this issue does not apply. In the case of load-out by rail, river or sea, slot problems are generally less common, but still possible if transportation is to be provided by the metal owner

***Recommendation:*** LME to issue guidance where required. Consider the possibility of escalation to a third-party dispute resolution service if disagreements persist between metal owners and warehouse operators.

iii. Clearly state that, if such guidance results in the creation of slots which are deemed "undesirable" by metals users, then a failure by those in the queue to request such slots will not be seen as a load-out failure by the warehouse concerned. In a practical sense, each slot should be offered to every metal owner who has asked to withdrawal metal, in queue order. However, if every owner in the queue refuses the slot in question, then the warehouse can still count that slot's associated load-out into their total load-out, even though no metal actually left the warehouse.

***Recommendation:*** clarify that slots rejected by all metal owners in the queue will count towards Load-Out.

In the final analysis, the issue remains (and has been raised by participants in the Consultation) that the LME has never undertaken an ab initio assessment of warehouses' logistical capacity, and all of the load-out requirements are arbitrary figures. As such, it is difficult for the LME to enter into meaningful discussion as to load-out rates.

***Recommendation:*** announce the intention to engage a specialist logistics consultant to conduct a review of the reasonable operational expectations and requirements for warehouses for the loading-in, holding and loading-out of metals, so that future discussions on the topic can be conducted on a better-informed basis.

#### 6.5.1.1.2. Lack of short term warranting

A core concern, highlighted in the Consultation Notice, is that the warranting of metal may become more difficult. The expectation is that the Affected Warehouses will choose to load in less metal than before the Proposal was unveiled – which would appear to be a valid assumption. Furthermore, each of the five Affected Warehouses is the dominant player in its own good delivery location. As such, to the extent that an Affected Warehouse reduces its load-in rate, the effect will be to materially reduce load-in in the whole of that good delivery location.

Because incentives have historically been most attractive at the Affected Warehouses, significant quantities of off-warrant metal have accumulated in these locations, with the expectation that warranting facilities (and premium payments) will be available whenever required by the metal owner. Indeed, in some cases, the metal is held by those with short positions on the LME, who will need to place the metal on-warrant in order to deliver against their contracts at maturity. Based on the Consultation, it would appear that many such metal owners do not have any formal agreement guaranteeing warranting capacity in respect of such metal. In this respect, there is a danger that market users expecting to warrant metal will not be able to do so. In times of contango, this danger is not material since LME metal may be borrowed easily – but, if the market were to backwardate, this would become problematic. It has even been suggested that warehouses would seek to take advantage by deliberately restricting load-in, and charging a high service fee to facilitate such load-in, which short holders would have little option but to pay.

The question is hence one of warehouse substitutability and elasticity:

i. **Substitutability**. Each of the Affected Locations has one or more non-affected locations within reasonable distance[52]. As such, metals owners have the ability to move their metal to a location where warehouses are more likely to accept it. In this respect, operators of non-Affected warehouses have expressed a strong willingness to take in such metal, on the basis that the Proposal will "reset" the competitive dynamic, and allow

[52] Approximately: Detroit – Chicago (283 miles); New Orleans – Mobile (144 miles); Vlissingen – Rotterdam (81 miles); Antwerp – Rotterdam (64 miles); Johor – Port Klang (222 miles)

non-Affected Warehouses to take in metal which previously would have gone only to Affected Warehouses.

For metal owners, the use of substitute warehouses will have a frictional cost, given that they will need to move metal in order to achieve warranting – however, the shipping cost to substitute warehouses has been estimated in conversations to be non-significant in the context of the overall metal price. More concerning is the possibility that metal owners may not ship their metal, and then be caught in a backwardation without deliverable metal – however, the LME is a professional market, and it must be expected that short position holders make adequate provision to warrant metal for delivery (including, possibly, the use of standby agreements with warehouse operators to ensure adequate warranting capacity).

ii. **Elasticity**. To the extent that Affected Warehouses reduce or cease load-in in their locations, other warehouse operators have indicated that they will enter into[53], or expand their operations in, that location. Given the availability of storage space in many of these locations, the potential elasticity of supply is strong.

Clearly, in respect of both substitutability and elasticity, any analysis relies on the behaviour of the Non-Affected Warehouse operators. It cannot be guaranteed that they will act in the manner they have indicated during the Consultation[54] – however, the economic incentives would appear to point in this direction. On balance, this unintended consequence is not viewed as a significant threat in the context of the Consultation.

***Recommendation:*** warn metals owners that they may need to review arrangements for warranting metal, but express the view (arising from the Consultation) that sufficient metal warranting capability exists in the market today, even were the Affected Warehouses to completely cease the load in of new metal.

#### 6.5.1.1.3. Lack of long term warranting

Even if the concerns around immediate warranting capacity per 6.5.1.1.2 do not manifest themselves, this may not be a valid assumption across the economic cycle. In particular, it is interesting to note that the economic conditions of 2008-9, which arguably gave rise to the current issues in the warehousing network, were characterised by user fear that sufficient warehousing capacity would not be available in key locations of metal accumulation (most notably aluminium in Detroit). It is demonstrably the case that adequate storage capacity was only available in Detroit because operators (most notably Metro) invested in growth and hence increased capacity.

Throughout the Consultation, the point has been made (by both warehouse operators and metal owners) that – under the Rule – such investment could not be guaranteed in a future crisis, given that those investing would also need to budget for the likelihood that, as the economic cycle returned to growth, the metal accumulated in the warehouses during the crisis would likely be withdrawn, leading to queues and hence greater load-out obligations per the Rule. The costs of meeting such obligations would require to be factored-in to the initial decision to invest in additional capacity during the crisis, and may change hence alter that economic calculus.

The impact of this consequence should not be underestimated. However, it is reasonable to rely on principles of market economics, which would suggest that – in time of great demand for a service (in this case, warranting facilities during an economic crisis) – the price of such service will react in such a manner as to make further investment attractive for providers of the service. It is absolutely the case that the cost of warranting (in the form of rents, or even an explicit load-in fee) may rise – but the extent of such rise will be limited by the impact of investment in new capacity once prices have risen to an appropriate level. And in this context, the burden of the Rule may well give rise to higher equilibrium and investment threshold prices, but it does not invalidate the fundamental economic principle that investment will ultimately occur.

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[53] In some cases, other operators have withdrawn from locations with Affected Warehouses (such as Detroit) because they did not feel able to compete – in certain cases, such operators have suggested that they would return to these locations if the Proposal were to be implemented

[54] Indeed, the Proposal may disincentivise investment in new warehouses, as operators may be concerned that they may eventually develop a queue, and hence be subject to a more stringent set of load-out obligations

It should also be noted that Sections 6.5.1.1.4 and 6.5.1.1.5 anticipate reserving to the Board ongoing powers to alter explicit element of the Rule, in order to provide flexibility to correct potential unintended consequences or behaviour not consistent with the spirit of the LME warehousing network. It should be acknowledged in this context that, the greater the market's perception of "rule change risk", the greater the threshold for investment to be justified, given that the investment calculation will need to price-in a notional risk premium in respect of potential future rule changes (which would naturally be most likely anticipated following a large metal inflow as anticipated by this unintended consequence). As such, to the extent that the Board does propose to retain policy levers in this respect, it will be key to reassure the market that these will be exercised in a rational and proportionate manner.

A suggestion voiced during the Consultation is to provide an automatic mechanism whereby the Rule would be suspended in a market backwardation. However, as a matter of policy, the LME prefers to avoid any form of automatic backwardation policies, relying instead on the discretion of the Board and Special Committee.

***Recommendation:*** note market concerns as to long term warehousing capacity, but restate commitment to creating a warehousing market which encourages more effective competition and hence restores normal economic market incentives to the activity of warehousing, with the stated hope that this will facilitate investment at times of market capacity shortage.

#### 6.5.1.1.4. Warrantholder activity

One scenario which has been highlighted by warehouse operators is the potential for a trader to deliberately seek to accumulate a significant number of warrants in a given Warehouse. Having done this, the warrantholder would be able to cancel their warrants, and instantly give rise to a queue, creating a set of unwanted obligations for the warehouse operator under the Rule. Such a warrantholder may then attempt to exert leverage on the warehouse, threatening to cancel warrants unless a significant inducement is paid.[55]

This is not an impossible scenario, although clearly it presupposes a degree of nefarious behaviour on the part of the warrantholder. As such, and because the LME Compliance department maintains a full list of the underlying entities (including groups) which hold warrants, such behaviour is reasonably easy to identify.

Ultimately, any trader looking to exploit this possibility would need to invest a significant amount in building up the warrant position, and so can likely be disincentivised from such behaviour by the threat that the load-out rule would not be enforced. As such, if the LME reserves the right to "ignore" queues which are shown to be built through this type of behaviour, it is likely that such behaviour will not be attempted.

Given that this unintended consequence was raised by only two warehouse companies, the September Warehousing Committee was asked whether this was considered to represent a sufficiently material threat to require special treatment. The consensus views was no (and even those operators who had raised the concern did not pursue the point).

***Recommendation:*** this issue does not require to be specifically noted in the Consultation response. However, as a more general action, introduce a clause into the Rule, giving the LME the power to disapply the provisions of the Rule where the Board considers such action to be in the best interest of the market, or necessary to avoid market abuse. The precise parameters under which such power would be exercised do not need to be set out at this time, but the ownership of more than 50% of the queued warrants by a single party (unconnected to the

[55] This scenario is similar to that which may arise under the proposal whereby rent is not charged in queues per Section 6.5.2.1.5, namely that warrantholders may be incentivised to create queues in order to achieve free metal storage

warehouse operator) could be cited as an example of evidence which may lead to this conclusion.

### 6.5.1.1.5. Alternative routes to build queues

A number of concerns have been raised as to the potential for warehouses to abide by the letter of the proposed Rule, but still to benefit from queues.

It should be noted that operators of Affected Warehouses would argue that queues have not arisen from cynical behaviour on their part, but rather a rational business response to prevailing economic conditions. As such, the inclusion of these unintended consequences[56] should not be taken as a suggestion that warehouse operators would act in this way, but rather the broader market's concern that this is at least a possibility. In this regard, the two most likely abusive scenarios would appear to be:

i. Creation of a series of 99 day queues[57]. To the extent that warehouses have a degree of control as to where metal is loaded-in (which is a fair assessment given their payment of incentives), then it seems feasible that – rather than the current model under which an operators typically incentivises metal into one or two locations to maximise those queues – metal is instead incentivised in to a more distributed set of global locations by a single operator, with the intent of constructing 99 day queues in each of those locations. Given that the queues would fall under the 100 day threshold, the Rule would not come into operation, but locked-in queue rent would still be achievable.

   On the one hand, this would appear to be a preferable situation than that currently seen – given that "free" warrants are generally found in locations with queues of over a year, a scenario in which "free" warrant queues were a maximum of 99 days would represent a demonstrable improvement. Furthermore, the total free flow of metal through the system would be significantly greater, given that each of the operator's 99 day queue warehouses would require to adhere to the current load-out requirements, as opposed to the current situation in which these rules will likely apply to just one or two long-queue warehouses belonging to that operator. Additionally, the incentive which could be paid on a given tonne of metal would be reduced, given that rent would be locked-in for only 99 days.

   However, it should be realised that the market reaction to such a scenario is unlikely to be positive, and would likely be portrayed as the LME having caused a greater market failure than currently experienced (despite this not logically being the case).

   This would also appear to be a persuasive argument for reducing the 100 day queue threshold, as further discussed in Section 6.5.1.3.1.

ii. The "rotating queue" model. Under this approach, a warehouse operator would incentivise a large amount of warranted metal into its Warehouse in a given location. As part of this incentive, the operator would require the metal owner not to float the warrants until a point in the future – as such, warrants would not be cancelled, and no queue would form. As such, new metal could continue to be loaded-in to the Warehouse with no required incremental load-out under the Rule.

   Once a very large amount of metal had been accumulated in the Warehouse, the warrantholders would be allowed to sell their warrants on the LME. A large proportion

[56] Unintended from the perspective of the LME in promulgating this Rule, but clearly intended from the perspective of the hypothetical warehouse operator

[57] Or, in general, (N-1) day queues, where N is the final queue threshold per Section 6.5.1.3.1. In practice, a buffer of just one day is probably unattractive for a warehouse operator, given the danger of unexpected warrant cancellations pushing the queue above 100 days and hence bringing the Rule into operation

of these warrants would then be cancelled, creating a significant queue[58]. At this point, the warehouse operator would cease loading-in new metal to the Affected Warehouse, and would hence not attract any new load-out requirements under the Rule. Instead, new metal would be incentivised into a Warehouse run by that operator in a separate location. Rent from the queue at the first location would be used to incentivise locked-up metal into the second location – and, once the second location had accumulated a significant stock, its warrants would be allowed to float, creating a long queue at that location as well. In this sense, a "rotating queue" could be created across locations.

Again, this model would seem to be preferable to the current situation, given that each of the Affected Warehouses would need to discharge the current load-out requirements, as opposed to just one Warehouse at present. However, again, the market is unlikely to take this view, and will instead consider that the LME system has been "gamed" by cynical warehouse operators.

It is important to note that any attempt to proscribe the accumulation of a queue in this manner via a modification to the Rule would require a fundamental change of approach, in that action would have to be taken against warehouses taking-in metal which did not, at the time of load in, possess a queue[59] – a key principle of the Rule as currently formulated is that it will apply only to Warehouses with queues. Additionally, this could be seen as a capacity constraint on the Warehouse, which is not believed to be feasible per competition law.

As with many of the other unintended consequences, it is expected that the threat of action by the LME may disincentivise this behaviour. In particular, the models of warehouse behaviour described above require a significant up-front investment by the warehouse company (in the form of the incentive paid to attract metal into the warehouse), in the expectation that rent will be made later through the queues. As such, if uncertainty can be created in the market as to the viability of such a model, the willingness of a warehouse operator to embark on such a venture may be reduced.

This would also seem an appropriate juncture to remark that many Consultation respondents feel that the LME already has the necessary power in this respect, specifically under Clause 9.3.1 of the Warehousing Agreement, which states:

*The proper functioning of the market through the liquidity and elasticity of stocks of metal under Warrant should not be artificially or otherwise constrained by Warehouses giving exceptional inducements or imposing unreasonable charges for depositing or withdrawing metals, nor by Warehouses delaying unreasonably the receipt or despatch of metal, save where unavoidable due to force majeure.*

The Exchange would generally need to be made aware of the alleged inducement before it could investigate whether or not it breached Clause 9.3.1. Inducements tend to be agreed bilaterally between the warehouse company and the party putting the material on-warrant. Inducements are not publicised by either party, despite possibly being relatively commonplace. The Exchange has never received a specific complaint in relation to an inducement, and has not historically had cause to investigate.

It is worth noting that the Exchange does have the right to investigate charges levied by warehouse companies under Clause 9.3.2:

*The Exchange reserves the right to investigate all charges levied including, for example, those for loading and unloading metal for Warrant purposes. In the event that a Warehouse fails to meet*

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[58] Presumably, the operator would ensure that the creation of the queue did not happen until the first day of a new Calculation Period, so that no load-in would be associated with a Calculation Period in which queues had been present, and hence absolutely no new load-out obligations would be incurred under the Rule

[59] Alternatively, a more stringent look-back analysis could be put in-place to disincentivise such behaviour, but this would be argued to amount to the same effect, as load-in would be disincentivised by the potential for greater obligations in the future

*minimum loading standards and requirements from time to time laid down by the Exchange without justification, except in the case of force majeure, the Disciplinary Procedures shall apply,*

However, given the possibility of incentives being used to create a queue, there may be value in further reinforcing the Exchange's powers under the Warehouse Agreement. In particular, it is proposed that the formation of a queue at a warehouse be viewed as a sufficient (but not necessary) condition for the Exchange to investigate whether the payment of incentives was made specifically in order to create a queue[60]. To the extent that this is found to be the case, then the Board will have the right to apply increased load-out requirements, and also potentially adjusting the decay factor on per-warehouse basis as further explored in Section 6.5.1.3.2.

Additionally, this would represent an appropriate juncture at which to address an issue also raised in the Consultation, namely the differing views on acceptability of the "yo-yo trade", referenced in Section 5.3.2(iii), whereby metal may be loaded-out of a warehouse by its owner, and then back into another warehouse. Indeed, it is possible that the metal could eventually return to the same warehouse[61]. Rather than trying to make specific rules to address this, it is again proposed that this be subsumed into the Exchange's general right to investigate the formation of queues, and apply its professional judgment as to the reasonableness, or otherwise, of such behaviour.

***Recommendation:*** indicate that the LME recognises the potential for warehouse models which are consistent with the letter of the Rule, but inconsistent with the spirit thereof. Note that the appropriate response is considered not to be a more complex Rule, but rather additional investigation and enforcement powers. Add a new Clause 9.3.4 of the Warehousing Agreement to read:

*The Exchange shall have the power to compel Warehouses at which a queue has accumulated to provide all relevant information, including, without limitation, details of all inducements paid to attract the load-in of metal, and details of the provenance of loaded-in metal, including information about metal which may have been held previously in that Warehouse, or another facility operated by the same Warehouse or member of the Warehouse's group. On the basis of such information, the Directors may, at their discretion, impose additional load-out requirements on a Warehouse which the Directors consider to have intentionally created, or attempted to create, a queue by the use of inducements.*[62]

#### 6.5.1.1.6. Loss of metal from the LME network

A large number of respondents have raised the concern that the impact of the Rule will be to cause the total quantity of metal in LME warehouses to fall. This seems to be a logical analysis, given that (per Section 5.2.2), the disparity between on-LME and off-LME rents would make off-LME storage the natural location of choice – and, to the extent that a significant amount of metal is bound-in to LME storage by queues, any action to address such queues will likely hasten the flow of metal off-LME.

While this does represent a significant concern for both the LME[63] and the market[64], it does not seem appropriate to avoid action on queues simply in order to keep metal in the LME warehouse network. As such, it is likely necessary to accept the loss of metal as an unintended (but predictable) consequence of the Proposal.

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[60] This will require the warehouse company to be compelled to provide relevant documentation in respect of incentives paid – however, given that such information appears to have been requested by regulators in their investigations, it does not seem unreasonable for such information to be requested, consistent with the LME's existing powers to request relevant documentation such as bills of lading

[61] A direct load-in back to the warehouse from which load-out was made would not be viewed by the LME as satisfying the load-out requirement. However, once the metal has been shipped out on a truck, it is extremely difficult from either a practical perspective (metal tracking per Section 2.1.4) or a legal perspective (interference with the rights of metal owners to utilise their metal as they wish, including their right to load in to warehouses) to control its onward journey

[62] Any amendment to the Warehouse Agreement which materially increases the obligations of a warehouse will require the warehouse companies to be consulted and given 90 days' notice of the amendment (Clause 9.11.4 of the Warehouse Agreement).

[63] Given that the relevance of the LME derives from the ready availability of metal in the physical network available for settlement – for the avoidance of doubt, the LME's stock levy, which is mathematically increased by the amount of metal on-warrant, is not considered

The challenge for the LME will be to work to restore the position of LME warehousing as an attractive storage mechanism for global metal. The key inhibitor to this at present is the level of rent for LME facilities. As further set out in Section 6.5.1.1.8, it is hoped that an eventual outcome of the Proposal will be the restoration of rent competition to the market, which would represent a key step to catalysing LME storage[65]

#### 6.5.1.1.7. Complexity

It has been observed that the Rule, if implemented, would add material complexity to the process of LME warehousing. This would manifest itself in four key respects:

i. Complexity for Affected Warehouses, who would be required to calculate their Cumulative Incremental Load-Out Requirement under the Rule. However, discussions with the warehouse operators have revealed that operations are already underpinned by complex modelling (facilitating, inter alia, the appropriate levels of incentive which should be paid to attract metal into the warehouse). As such, the incremental complexity of the Rule is not expected to be prohibitive.

ii. Complexity for the LME's physical operations department, who would be required to enforce the rule. However, given the limited number of Affected Warehouses in the network, such overhead is not expected to be overly problematic.

iii. Complexity for metal owners. Previously, on the date a warrant was cancelled and arrangements made for shipping, the warehouse would be able to provide a slot to the metal owner, which would then change only if metal earlier in the queue were re-warranted. Under the Proposal, if metal sits in a queue at an Affected Warehouse, then – every three months, once the Incremental Load-Out Requirement is known for that quarter – the queue will be re-aligned, and the date of metal withdrawal may move.

    As further set out in Section 6.5.1.2.1, it is expected that – once the logistics are more fully explained to the market – concerns in this respect will be reduced, given that re-scheduling will take place only once every three months with at least one month's notice, and no metal owner will be compelled to move a slot forwards if it does not desire so to do.

iv. Complexity for market participants. As explained in Section 5.3.2, those players accepting warrants in LME settlement, and subsequently cancelling those warrants, generally do so on the basis of extensive modelling as to queue lengths, with the time taken to withdraw the metal forming a key element of the calculation. To the extent that the Rule adds complexity to that modelling, then such participants will find it more difficult to trade with certainty.

    On the one hand, this is perhaps a desirable outcome, given that those running such models are seen by much of the market as benefitting from the opacity of LME prices, and enjoying a competitive advantage by virtue of the resources they can devote to such modelling – and, indeed, the long term aim of removing queues will also mitigate such analytical advantage. However, in the short term, those cancelling warrants do provide an important function in creating a pathway from LME warrants to free metal, which can then be consumed in the spot market.

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to be sufficiently meaningful from the perspective of the LME's target commercialised financial model to be a relevant factor in this consideration

[64] Given that off-LME metal is not subject to reporting or information barriers between storage providers and traders

[65] As set out in Section 5.2.1, LME warehousing will always be more expensive than off-LME storage, given the greater obligations incurred by a warehouse operator in LME storage. However, given the clear benefits of LME storage, it is to be hoped that many metals owners will be willing to pay the premium for LME storage, provided such premium is viewed as justifiable on the grounds of greater service, which is not currently the case

However, it is anticipated that the recommendations in respect of queue information set forth in Section 6.5.1.2.6 will mitigate these concerns, and allow sufficient modelling to maintain the flow of warrant acceptances and calculations.

#### 6.5.1.1.8. Rent / FoT inflation

As set out in the Consultation Notice, a likely outcome of the adoption of the Rule would be an increase in warehouse rents and FoT charges. In particular, Affected Warehouses which have paid inducements to attract metal on the basis of a certain resting time (under the current rules), and whose resting time would be reduced by the Proposal, may well be tempted to increase rents, such that the total "embedded value" of the queue remains constant.

As set out in Section 2.1.3.1, the power of the LME to regulate matters by, for example, capping rents has been understood to be limited. The LME's notional power – to question the economic basis of a proposed rent increase – is not useful in this context, because the new Rule would provide a strong basis for Affected Warehouses to argue for a rent increase. Indeed, even non-Affected Warehouses could argue that their obligations had increased, as they have to plan for the potential of queues (were warrantholders to cancel and request load-out).

The expected sequence of actions in respect of rents is as follows:

i. **Publication of the outcome of the Consultation.** To the extent that the Proposal is adopted, warehouse operators would be provided with an economic basis for increasing rents per the above. In the ordinary course, it is to be expected that Affected Warehouses would undoubtedly look to increase rents. The dynamic for Unaffected Warehouses would, however, be more complex.

   To the extent that Affected Warehouses are expected to reduce their load-in, then one argument would state that Unaffected Warehouses should look to reduce rents, and compete with each other on the basis of low rent for the metal which would otherwise have been warranted with an Affected Warehouse. On this basis, metal owners would warrant with the most economical warehouse. However, the warrants thus created would command a premium valuation (given low rent and lack of queue) – as such, any metal seller would warrant their metal, swap the premium warrant for a low-value warrant (in an Affected Warehouse), and sell this on the LME[66].

   However, non-Affected Warehouse operators have pointed out during the Consultation that it would take a certain degree of boldness to be a price leader in the space, given the fact that non-Affected Warehouse operators have historically tried to keep pace with the rent increases of the Affected Warehouses – even though this may not be the most logical approach.

ii. **Notification of rents to the LME (deadline 1-Dec-13).** In previous years, it has been the convention that several warehouses would submit extremely high rents, in the expectation that such rates would be queried by the LME per the Warehousing Agreement, after which the warehouse operator would reduce its rents to an amount it thought, in its own discretion, would be more reasonable in the circumstances. This seems to have been particularly true for the smaller warehouses, which do not want to be "left behind" by the rent increases of the larger players.

iii. **Publication of rents by the LME (31-Dec-13).**

iv. **New rents come into effect (1-Apr-14).** It should be noted that the LME rules operate so as to apply new rents to all metal in the warehouse. In hindsight, it may have been preferable to establish a system whereby rent on a particular warrant remained constant

[66] Or alternatively, simply sell the premium warrant in the OTC market, and avoid the LME altogether

throughout the tenure of the metal in the warehouse – but it would not be practical to retro-fit this solution, given the limitations of the Sword rent calculation system

It has been clear from the Consultation that the prospect of higher rents represents the market's most widely-feared unintended consequence.

As set out in Section 5.3.2, the metal owners sitting in queues are primarily merchants and banks. These players will have cancelled their metal on the basis of a model, which will have made assumptions as to queue lengths and rents (including expectations of rent increases, where queues extend into the next rent cycle). To the extent that the Proposal causes rents to increase more than expected by those who cancelled warrants and now sit in the queue, it is possible that such players will lose money[67]. However, these are professional market participants, and so (unless such losses are passed-on to physical metal purchasers) the market impact is likely to be limited.

The shape of the curve may also be impacted by higher rents. As set out in 5.2.2.2.2(iii), the short-end of the LME curve does react strongly to warehousing costs, as metal can really only be carried in an LME warehouse. However, the longer dates (which drive financing deals) are less sensitive, given the substitution effect of off-LME storage.

In summary, although the effects of increased rents are likely capable of absorption by the market, the public relations impact of such rents – especially as they would be "blamed" on the new Rule – are likely to be unacceptable to many market participants. As such, there are three proposed "lines of defence" against heightened 2014 rents and FoTs:

i. Reflected political, regulatory and user pressure. An interesting impact of the recent focus on the LME system is an apparent increased sensitivity around rents and FoTs. Accordingly, operators may be less likely to increase rents materially. The political, regulatory and user pressure ought to be communicated to the market, which could be achieved through a statement in the Final Notice.

   ***Recommendation:*** communicate political, regulatory and user pressure to the market via the means suggested above.

ii. Policy response. To the extent that warehouse operators attempt to reply to a reduction in the number of locked-in tonne-days in their queues by increasing rents and hence maintaining a constant embedded value, the natural response would be to increase the rate at which the queues are made to decay. In this respect, it is interesting to note that the Board have at their disposal a "policy lever", namely the decay factor in the Rule. It seems fair that the Board should retain control over this number – and, in the event that rents were increased to a level which the Board found inappropriate, then the Board could respond with an increase in the decay factor. While this could conceivably lead to a perpetual cycle of response and counter-response, eventually a point would be reached where the Affected Warehouses could not load in any more metal given the prohibitively high associated load-out, which would cause stocks (and, eventually, queues) to fall rapidly, and ultimately reset the competitive rent dynamic by eliminating the queues.

   The LME is investigating the extent to which competition law would permit the LME to adjust the decay factor on a per-Warehouse basis. However, because the decay factor applies only to Affected Warehouses, it is a tool which can be used to impact only those warehouses with queues, which are the warehouses considered most likely to lead on rent increases.

   If this tool were to be adopted, the LME would need to communicate to the market that this is how it would propose to address rents which it considered to be inappropriate.

[67] On the other hand, the effect of greater load-out rates may be to allow the merchant earlier access to the metal, which will increase value of the cancelled warrants and may offset the impact of higher rents

***Recommendation:*** if the tool is adopted, communicate the LME's intention to address inappropriate rent increases by use of the Rule's decay factor.

iii. Review of the LME's ability to regulate charges by setting maximum rents and FoTs. As explained above, the LME's position has been that an attempt to regulate rents or FoTs may be problematic under European competition law. However, in the light of the prevailing market conditions, regulatory developments and the potential impact of regulatory and political pressure, it seems appropriate to review the scope of the LME's ability to regulate rents and/or FoTs. The legal analysis of this topic is underway[68].

However, the review is unlikely to be completed until 2014. Accordingly it is not advisable to delay the results of the Consultation pending completion of the review.

***Recommendation:*** note to the market that this process is underway, and that, where possible, the LME will address high rents and FoTs.

### 6.5.1.2. Implementation details

Those partially or fully supporting the Proposal have raised a number of queries as to the precise operation and interpretation of the Rule. These items, and the proposed responses, are discussed below.

#### 6.5.1.2.1. Queue scheduling

The most common concern is around the precise mechanics of queue scheduling under the new Rule. This will be covered in a detailed implementation note, but the broad principles are as follows:

i. Metal will continue to be added to the queue once a warrant has been cancelled and the metal owner has completed the necessary administrative actions. A warehouse operator should assign slots on the basis of load-out under the current rules, including obligations under the non-dominant and nickel / tin rules (which are fully deterministic, since the schedule can be assessed on the basis of expected daily load-out of non-dominant metals, nickel and tin). In this way, all initially-quoted slots will be worst-case slots.

ii. At the end of each Calculation Period, the Incremental Load-Out Requirement in respect of the related Discharge Period will be known. The warehouse will then be required to allocate the Incremental Load-Out Requirement across the Discharge Period. The warehouse may exercise discretion in respect of this distribution, but the LME Physical Operations department will assess reasonableness and practicality, including guidance on acceptable slot times per Section 6.5.1.1.1.

iii. Once the allocation of additional slots has been achieved, then the queue must be adjusted by offering each new slot to each metal owner later in the queue. So, if new slots are made available on 1-Jan, then those metals owners currently scheduled for delivery on 2-Jan must be offered the incremental 1-Jan slots.

iv. This process is followed iteratively. So, under the above example, free slots will be available on 2-Jan, as a result both of Incremental Load-Out Requirement allocated to 2-Jan, but also any slots freed as a result of those originally scheduled for 2-Jan moving to 1-Jan. These slots must then be offered down the queue, starting with those scheduled for delivery on 3-Jan.

v. Each available slot must be offered to every metal user later in the queue. However, moving-up is always at the discretion of the metal user (who may choose to retain their

[68] For completeness, the analysis will consider (i) the regulation of rents and FoTs by setting a maximum for each, (ii) limiting inducements, (iii) restricting ownership of warehouses, and (iv) capping capacity by operator. Additionally, and in the shorter-term, counsel will be asked for their views on the concept of using the queue decay parameter as a policy response to industry-wide high rent levels

original slot) – and, to the extent that no users wish to take the slot, then the slot would be left free – however, the Warehouse would still receive credit for the load-out per Section 6.5.1.1.1.

vi. For the avoidance of doubt, the re-allocation of slots does not allow a Warehouse to retroactively adjust its load-out under the non-dominant or nickel / tin rules. By way of example, consider that the schedule for 1-Jan initially calls for the load-out of 3,000 tonnes of aluminium, and that an incremental 60 tonnes of nickel are required under the nickel / tin rule. Consider further that an additional 100 tonnes of incremental requirement is allocated to 1-Jan, and this is satisfied by moving up 100 tonnes of deliveries from 2-Jan to 1-Jan. Even if all of these 100 tonnes relate to nickel, the Warehouse will not be allowed to reduce its 60 tonne incremental requirement for nickel / tin per the original calculation.

***Recommendation:*** indicate that precise implementation details will be communicated in policy guidance, where required, from the LME Physical Operations department.

#### 6.5.1.2.2. Re-warranting

The issue of re-warranting continues to cause a significant degree of confusion and accusation in the market. As such, it is worth recapping the situation in respect of re-warranting.

Re-warranting occurs when a metal owner, having previously requested that his warrant be cancelled and delivered (and currently residing in the queue) requesting that the metal be placed back on-warrant, rather than being withdrawn. Re-warranting is likely to be at the initiative of either:

i. The metal owner – this will generally be driven by a change in the price curve for the metal concerned, which will alter the owner's economic judgment as to whether cancelling is desirable. In this case, the warehouse operator is not technically obliged to allow re-warranting, and may indeed charge a fee for this service. Although, in general, the warehouse will be pleased to re-warrant (as the metal will hence stay in the warehouse for longer, generating increased rent), the fact that re-warranting often arises from price movements does give the warehouse leverage over the metals user, with consequent potential for a fee to be demanded. This has happened in the past.

   ***Recommendation:*** clarify the market expectation that fees for re-warranting should be limited to the logistical effort required on the part of the warehouse, plus a reasonable profit margin, and should not be seen as a "profit-share" with the metal owner.

   Concern has been raised that the Rule would make warehouses less likely to accede to re-warranting requests. This is due to confusion under the Rule as to whether re-warranted metal would could towards a warehouse's Load-In quantity (resulting in a potential increase in Load-Out, which would be undesirable for the warehouse). It has been clarified to those who have asked (including the Warehousing Committee) that re-warranted metal would not count towards load-out – this would be inequitable, since otherwise the warehouse would be billed with the load-in twice (once when the metal was first loaded-in, and once when the metal was re-warranted) without the metal ever having been loaded-out. This is illustrated in Figure 26.

   ***Recommendation:*** clarify the status of re-warranting under the calculation.

ii. The warehouse – in this case, an incentive will generally be paid to the metal owner to incentivise the metal to be re-warranted (economically equivalent to the payment of an incentive to attract new metal into the warehouse). Although this creates market effects analogous to those of incentives for new metal, it is – like the incentives for new metals – a commercial matter between the warehouse and the metal owner, and not one in which the LME has a locus to intervene

From an operational perspective, when cancelled metal is re-warranted, this creates a "gap" in the queue. When such a gap is created, the warehouse is expected to offer the vacated slot to owners sitting later in the queue. Whether or not the slot can be re-filled gives rise to two different scenarios:

i. "Abusive" re-warranting – if metal is re-warranted very close to its load-out date (e.g. the day before), it will be practically difficult for any metal owner residing later in the queue to put in-place logistics (e.g. trucking) to take the place of the re-warranted metal. In this case, the warehouse operator could feasibly argue that no user could take the slot, and it is hence allowable for the slot to remain empty.

   However, this is a situation which the LME monitors, and so is satisfied that it does not represent a large-scale problem. In those limited cases where late-stage re-warranting happens for valid reasons, and the slot cannot be re-filled, the warehouse operator would be expected to make up the difference on subsequent operating day.

ii. "Non-abusive" re-warranting – provided that the slot can be filled by a metal owner later in the queue[69], then it is hard to see that the re-warranting is anything other than a valid service offered to metal owners.

***Recommendation:*** clarify the LME's monitoring and controls in respect of re-warranting.

#### 6.5.1.2.3. Warrant creation scheduling

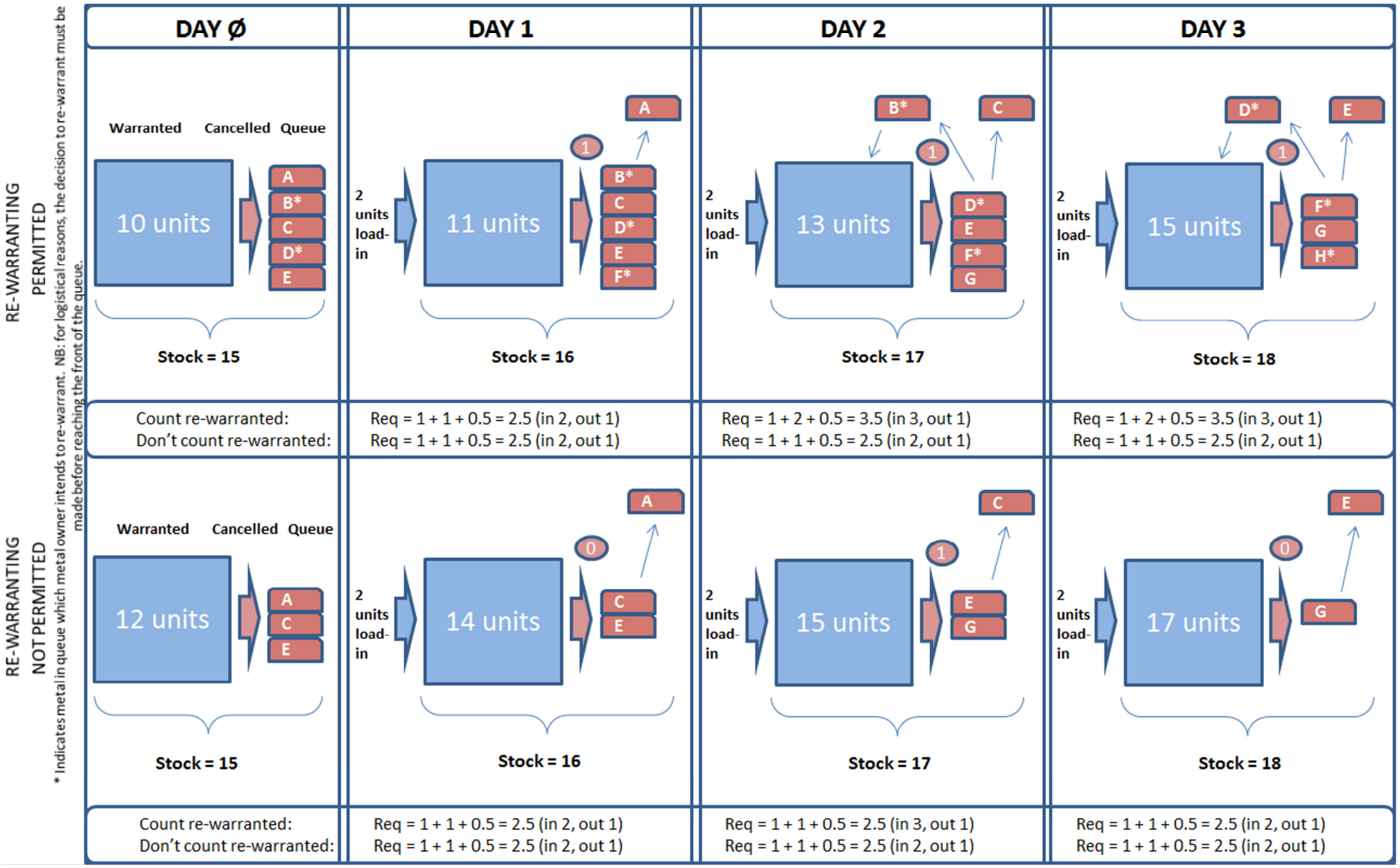
As currently formulated, a Warehouse's Incremental Load-Out Requirement may change based on the pattern of warrant creation during the Measurement Period. As set out in Figure 25, the most efficient operating methodology (from the Warehouse's perspective, in terms of minimising the Incremental Load-Out Requirement) is to create an equal number of warrants every day. If, on the other hand, a large number of warrants are created on just a few days, then the Incremental Load-Out Requirement will be higher, despite the total load-in being the same during the Measurement Period. A number of warehouse companies have suggested that this is unfair, given that warrant creation is at the request of the metal owner, and – in the view of the Warehouses – they do not exert any influence over the dates on which warrants are created. For example, before a third Wednesday[70], warrant creation requests are much greater, as shorts seek to prepare for settlement.

### Figure 25: Warrant creation scheduling analysis

| *(All figures in tonnes)* | EQUAL LOAD-IN | | | | | UNEQUAL LOAD-IN | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Day** | **1** | **2** | **3** | **4** | **TOTAL** | **1** | **2** | **3** | **4** | **TOTAL** |
| Load-in | 3,100 | 3,100 | 3,100 | 3,100 | 12,400 | 6,200 | - | 6,200 | - | 12,400 |
| Normal Daily Minimum Load-Out Rate | 3,000 | 3,000 | 3,000 | 3,000 | 12,000 | 3,000 | 3,000 | 3,000 | 3,000 | 12,000 |
| | | | | | | | | | | |
| **Cumulative Incremental Load-Out Requirement (Rule in Consultation Notice)** | | | | | | | | | | |
| Open | - | 1,600 | 3,200 | 4,800 | | - | 4,700 | 4,700 | 9,400 | |
| Plus: 0.5 x load-in up to NDMLO | 1,500 | 1,500 | 1,500 | 1,500 | | 1,500 | - | 1,500 | - | |
| Plus: load-in above NDMLO | 100 | 100 | 100 | 100 | | 3,200 | - | 3,200 | - | |
| ***Close*** | ***1,600*** | ***3,200*** | ***4,800*** | ***6,400*** | | ***4,700*** | ***4,700*** | ***9,400*** | ***9,400*** | |
| | | | | | | | | | | |
| **Cumulative Incremental Load-Out Requirement (proposed revised Rule)** | | | | | | | | | | |
| 0.5x Total Load-In up to TNMLO | | | | | 6,000 | | | | | 6,000 |
| Total Load-In above TNMLO | | | | | 400 | | | | | 400 |
| ***Total Load-In above TNMLO*** | | | | | ***6,400*** | | | | | ***6,400*** |

[69] And the resultant vacated slot also re-filled, and so on down the length of the queue
[70] Being a key liquidity contract date on the Exchange

**Figure 26: Re-warranting analysis**


RE-WARRANTING PERMITTED
RE-WARRANTING NOT PERMITTED
* Indicates metal in queue which metal owner intends to re-warrant. NB: for logistical reasons, the decision to re-warrant must be made before reaching the front of the queue.
DAY Ø
DAY 1
DAY 2
DAY 3
Warranted
Cancelled
Queue
10 units
11 units
13 units
15 units
2 units load-in
Stock = 15
Stock = 16
Stock = 17
Stock = 18
Count re-warranted:
Don't count re-warranted:
Req = 1 + 1 + 0.5 = 2.5 (in 2, out 1)
Req = 1 + 1 + 0.5 = 2.5 (in 2, out 1)
Req = 1 + 2 + 0.5 = 3.5 (in 3, out 1)
Req = 1 + 1 + 0.5 = 2.5 (in 2, out 1)
Req = 1 + 2 + 0.5 = 3.5 (in 3, out 1)
Req = 1 + 1 + 0.5 = 2.5 (in 2, out 1)
12 units
14 units
15 units
17 units
Stock = 15
Stock = 16
Stock = 17
Stock = 18
Count re-warranted:
Don't count re-warranted:
Req = 1 + 1 + 0.5 = 2.5 (in 2, out 1)
Req = 1 + 1 + 0.5 = 2.5 (in 2, out 1)
Req = 1 + 1 + 0.5 = 2.5 (in 3, out 1)
Req = 1 + 1 + 0.5 = 2.5 (in 2, out 1)
Req = 1 + 1 + 0.5 = 2.5 (in 2, out 1)
Req = 1 + 1 + 0.5 = 2.5 (in 2, out 1)

This is a consequence of the measurement rule operating on a daily basis, rather than on an average basis during the course of the month. The rationale for daily operation is to deal with Measurement Periods in which a Warehouse either becomes, or ceases to become, an Affected Warehouse. In these cases, it was felt appropriate that additional load-out obligations be incurred only in respect of load-in on those days when the warehouse is an Affected Warehouse. However, a daily calculation does give rise to the issue of irregular warrant creation outlined above.

It does seem inequitable that different warrant creation patterns give rise to different Incremental Load-Out Requirements. As such, it is proposed that this issue is revisited. There would appear to be broadly two possible solutions:

i. A more complex solution, under which "unused" load-in on one Business Day could be rolled-forward and applied against load-in on a subsequent business day. However, this would have the effect of further complicating the Rule – which, as outlined in Section 6.5.1.1.7, already exhibits a significant degree of complexity.

ii. A simpler solution, under which load-in and load-out would be aggregated across a Calculation Period[71]. However, this will require the definition of a threshold which will determine whether a queue has existed during that Calculation Period, and hence whether any excess load-in would give rise to an Incremental Load-Out Requirement[72]. This could be the basis of a spot assessment (i.e. whether a queue exists on, for example, the last day of the Calculation Period), an average assessment (whether a queue has existed for a certain number of days during the Calculation Period), or an absolute assessment (whether a queue has existed at all during the Calculation Period). The concern with the first two approaches is the potential for queue manipulation – given a warehouse operator's powers to incentivise metal out of a queue via rewarranting, the market will naturally exercise suspicion in respect of any mathematical queue length calculations[73].

    As such, it would appear that only an absolute assessment will be acceptable to the market. This will pose a different problem for the warehouse operators, in that Calculation Periods in which the threshold is crossed will give rise to a greater Incremental Load-Out Requirement, because all load-in during that Calculation Period will give rise to incremental load-out requirements. The question is hence whether the warehouse operators would prefer the disadvantages of the current rule (in terms of irregular warranting giving rise to different load-out requirements), or this new concern by moving to an aggregated period calculation.

Given that this is effectively a choice for the Affected Warehouses (between the Rule as currently formulated, and a modified version as outlined above), the question was raised at the September Warehousing Committee[74]. The consensus view was that an aggregated period calculation would be preferable.

***Recommendation:*** adjust the Rule to operate on the basis of an aggregated period calculation.

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[71] As is already the case for the Preliminary Calculation Period

[72] It is possible for a warehouse to load in more than it loads out – but, if a queue does not exist, then the Rule does not impose an Incremental Load-Out Obligation, as a key element of the Proposal is to impact only warehouses with queues over 100 days, or such other threshold as may be decided by the Board pursuant to Section 6.5.1.3.1

[73] It is the case that the Preliminary Calculation Period uses a spot assessment, namely whether a queue exists on the last day of the Preliminary Calculation Period. However, this is to incentivise queues to fall naturally, and the potential for queue manipulation – although present – would immediately be addressed in the First Calculation Period

[74] Clearly no indication was given as to whether the Proposal would be implemented, given that this is a topic for the Board – however, the question was posed on the theoretical assumption that the Proposal were implemented

#### 6.5.1.2.4. Historical warehouse investment

Two of the three companies running Affected Warehouses have highlighted the investment which they have made in their networks on the basis of the current LME rules, and have suggested that the "grandfathering" provisions of the Proposal do not go far enough, because they apply only to metal loaded-in prior to the prospective adoption of the Rule[75]. It is objectively demonstrable that warehouse operators have invested in new facilities on the expectation of metal inflows (including metal attracted through incentives) which may not now materialise, or – even if available – be desired by the warehouse operator, given the incremental load-out requirements which could be incurred if such metal were loaded-in[76].

Additionally, companies have indicated that, prior to the publication of the Consultation Notice, they have entered into long term "offtake" agreements with producers or merchants, with the economics of such agreements negotiated on the basis of the current rules. It has been suggested that such agreements should be included in the grandfathering provisions, in that metal contracted prior to 1 July 2013 to enter the warehouse at a future date should be excluded from the load-in calculation under the Rule[77].

While these are reasonable points, the general principle must remain that the LME enjoys the flexibility to change its rules – this principle is enshrined (with appropriate notice periods) in the Warehousing Agreement, and any investment by warehouse operators should have been with the knowledge that the LME does have the power to implement changes. Additionally, establishing a general grandfathering principle of the type envisaged would create significant moral hazard, in that warehouses would be incentivised to enter into more long term agreements in the hope of avoiding future rule changes.

As a final issue, certain Affected Warehouses raised concern as to the disparity between the nine month Preliminary Calculation Period, and the three month Preliminary Discharge Period, suggesting that the difference between the two was such that obligations incurred in the former (especially obligations which had been entered into prior to 1 July 2013) would be extremely difficult to discharge in the latter. However, given the optimal outcome would be for Affected Warehouses to balance load-out and load-in during the Preliminary Calculation Period (hence achieving the stated policy objective of disincentivising net load-in prior to 1 April 2014), it is not clear that the outcome is undesirable.

***Recommendation:*** re-state the Board's view that the current grandfathering arrangements are appropriate, proportionate and sufficient.

#### 6.5.1.2.5. Steel

At present, steel billet sits in the same warehouse queues as other metals, and does not have separate queues (as for cobalt or molybdenum), or specific minimum load-out rates (as for nickel or tin). As such, much of the steel stored in US warehouses is subject to queues in Detroit, despite the fact that steel is stored outside and therefore separately to non-ferrous metals. Historically, this has not proven a significant issue, because the LME steel contract has suffered from a broader set of structural weaknesses (primarily the difficulty in structuring a relatively low-value commodity as a global contract), which has resulted in a contract redesign, returning to a European regional contract.

As part of this redesign, warranted steel in non-European warehouses will required to be either withdrawn by the warrant holder by 30 May 2014, or shipped (at the expense of the current warehouse) to a European good delivery location. However, this is made more difficult by the fact that the cancelled steel is stuck in queues – although warehouses would presumably like to load out the steel prior to 30 May 2014 (so that they do not have to pay for shipping to Europe), and the warrantholder would, in most cases, also like to take delivery of the steel. However, because the warehouse operator must obey the ordering of the queue, it will not be possible for the steel to be loaded-out before the deadline.

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[75] Or, arguably, prior to 1 July 2013, given the anti-frontrunning provisions contained in the Rule

[76] Most facilities are leased, rather than owned, by warehouse operators – as such, the amount of investment may be more limited than would first appear

[77] It should be noted, however, that many of the offtake agreements are not formally documented in terms of precise quantities etc, and are more in the form of a general understanding – this is particularly the case when the metal owner and the warehouse operator are part of the same group. As such, recognition of such arrangements under formal grandfathering agreements are likely to be difficult in practice

Although this topic is not related directly to the warehouse consultation (i.e. the issues in respect of steel have been precipitated by the change in the contract, and no practical approach would shrink the queues before the load-out deadline for steel in North America), the warehouse consultation has brought this issue to the fore. As such, it is considered appropriate to address this in the context of the consultation.

**Recommendation:** create a separate load-out rate for steel billet, of 1,500 tonnes per day, to take effect from 1 April 2014. This is unlikely to be contentious, and does not require separate notice per the Warehousing Agreement.

#### 6.5.1.2.6. Queue and stock information

A consistent comment in the Consultation has been that data in respect of queue lengths is not readily available. This has fuelled the view that the LME has attempted to conceal the issue of queues.

Presently, the LME circulates queues by location[78] to the Warehouse Committee quarterly. As of 10 October 2013, the LME will be providing a list of waiting times in queues to the FCA and will continue to do this on a monthly basis going forward. At present, this information is not published to the market.

Partly, the LME's reluctance to provide detailed stock and queue data is driven by the danger that those merchants and trading houses with the most well-staffed analytical capabilities will take advantage of the availability of data to derive a trading advantage, since this information informs the decision to buy cash contracts on the LME, to take delivery of warrants, and to cancel such warrants. However, the direction of the broader market is towards greater transparency. Additionally, the eventual impact of the Rule will be to remove queues, and hence broadly obviate the information advantage issue. It does, however, appear reasonable to publish data on a delayed basis, to avoid the danger of a "high-frequency warrant market", with advanced traders deploying algorithms to digest published stock and queue information, and then moving immediately to make trading or warrant cancellation decisions on the basis of such data.

It should additionally be noted that Clause 6.3.3 of the Warehousing Agreement currently prohibits the LME from publishing stock data by operator.

As such, given the misperception that the current data offering reflects an attempt by the LME to avoid transparency, and the reasonable desire of the market to understand the impact of the Rule on queues, it does seem appropriate to review the data provision parameters.

***Recommendation:*** modify Clause 6.3.3 of the Warehousing Agreement to allow greater dissemination of per-Warehouse data[79] on a delayed basis. Physical Operations department to develop a template for regular delayed warehouse data, including queues and stocks by Warehouse (i.e. operator in location).

#### 6.5.1.2.7. Licensing criteria

It has additionally been noted by Consultation respondents that the licensing criteria for LME good delivery locations, warehouse operators and sheds are not conducive to the entry of new players to the market. Key concerns are as follows:

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[78] In practice, observers know which operators have queues, and hence the published data for e.g. Detroit, which indicates that queues range between 0 and 520 days, is widely-understood to mean that Metro Detroit has a 520 day queue, and all other operators have no queue

[79] Subject to three months' notice to the market

i. Relevance of rules to the current market, given changes in global logistics models. Most commonly cited in this respect is the ongoing requirement for breakbulk facilities, even at ports where all metal shipments are containerised.

ii. Ongoing adherence to a body of precedent decisions which may no longer be relevant. Most commonly cited in this respect is the need for rail spur connectivity at warehouses in e.g. Detroit – historically, the LME has refused to license facilities without rail connections, and this precedent continues to be respected, even though rail is decreasingly employed as a shipment route.

It should be noted that there is an obvious downside to liberalising criteria – namely, that Affected Warehouses will find it easier to list new sheds in these locations, which will exacerbate the common market complaint that the LME makes it “too easy” for capacity to be added by warehouses with queues[80]. However, to the extent that the broader Proposal addresses the core queue issue, then this will likely be a less pressing concern.

***Recommendation:*** announce a workstream to re-assess the LME’s good delivery location, warehouse company and shed listing criteria. In particular, the current five-year per-metal location assessment exercise, undertaken by the LME Executive, should be folded-in to this piece of work. This analysis should also incorporate the logistical assessment referenced in Section 6.5.1.1.1. Additionally, a review of the Warehousing Agreement, as the mechanism for enforcing the rules, should be undertaken in parallel. Finally, the role of the Committees in respect of approvals and rule changes – although advisory per Sections 2.3.2, 2.3.3 and 2.3.4 – should be re-assessed and formalised.

#### 6.5.1.2.8. Enforcement

A common theme raised in the Consultation is in respect of the LME’s powers of enforcement – the most common scenario posed being a Warehouse which accumulated an Incremental Load-Out Requirement under the Rule, but which then failed to meet such requirement during the associated Discharge Period.

In general, the LME already enjoys significant powers of enforcement, through the Warehousing Agreement and the LME Rules, as fully set out in Section 2.3.5. As such, appropriate means of enforcement already exist for use by the LME.

However, it is also interesting to note that the nature of the Rule additionally allows enforcement through a simple mathematical approach. Given that the effect of the Rule is to link load-in and load-out, an Affected Warehouse failing to discharge its load-out obligations can be brought back into mathematical alignment by suspending its right to load-in metal (or, in practice, to warrant metal via the LMEsword system).

It should additionally be noted that the LME Policy for Approval of Warehouses contains a set of transitional procedures in respect of warehouses which cannot meet LME criteria, which would appear to apply to changes in the load-out rate. However, unlike previous changes (which have called simply for a quantitative increase in load-out rate), the Proposal does not impose new requirements on warehouses if they choose to cease load-in. As such, it is not considered necessary to allow significant time for warehouses to modify their logistics to achieve compliance with the rule.

***Recommendation:*** Affirm that sufficient power exists to enforce effectively the Rule. Amend the Rule to specifically indicate that suspension of warranting rights may be an appropriate sanction in respect of a Warehouse which fails to comply with its requirements under the Rule.

[80] In practice, per Section 2.3.4, the requirements for Affected Warehouses to license new sheds are precisely the same as for any other warehouse

#### 6.5.1.3. Key parameters

Among respondents, significant attention has been paid to the two key mathematical parameters in the Rule, namely the 100 day queue threshold and the 0.5 decay factor. Given the arbitrary nature of both numbers, such debate is to be expected.

##### 6.5.1.3.1. Queue threshold

The 100 day threshold in the Rule was chosen by the Board on the basis that, as set out in Section 5.3.2, the issue facing the market is not one of physical users waiting in queues for metal (in which case a 100 day wait would still be unacceptable, given the increasingly short scope of sourcing arrangements), but rather one of premiums (with longer queues driving up premiums as a proportion of the absolute price).

Metals consumers (and operators of non-Affected Warehouses) have almost universally requested that the queue threshold be shortened, preferably to a length where a physical user could still buy an LME warrant in the cash market, cancel that warrant, and have access to the underlying metal in a timeframe consistent with an industrial procurement strategy. Based on discussions, the weighted average demand would appear to be a queue threshold of 30 calendar days.

The core question in this respect is whether, even under 30 day queues, users would really employ LME warrants as an element of their metal sourcing strategy. Anecdotal evidence would suggest that, even during periods when queues did not exist on the LME, users generally did not take delivery of warrants, but still preferred to use merchants as an intermediary. There are two key reasons why merchants may remain the route of choice, even in the absence of queues:

i. The LME's settlement model means that warrants received by a metals buyer may be of any brand and in any LME good delivery location. As such, an industrial metals user will still require the services of an intermediary to procure warrants of the correct brand and in the correct location.

ii. Merchants will assist with the logistics of metals withdrawal (paperwork, payments, customs duty etc), which remain prohibitive for all but the largest metals users.

Based on discussions, it would appear that the intent of metals users is not to use LME warrants in settlement, but rather to have this option available as a "backstop" option which can be utilised in negotiations with merchants[81]. Under the current market structure, merchants are aware that users could not access the LME system as an alternative source of metal, and so do not need to calibrate prices in this respect. However, under a queueless scenario, this would be a backstop for users, and hence merchants would be forced to align prices with the LME, and justify any premium on the basis of brand, location and customer service. This is entirely consistent with the broad theme outlined in Section 5.4.3, namely that the core issue in this debate is the lack of a transparent price which market participants can use when entering into their bilateral negotiations.

A shorter threshold would also further reduce the premium contribution to the price. Furthermore, it would mitigate the risk identified in Section 5.3.2 – namely the concern that warehouse operators adopt an (N-1) day target queue model.

Perhaps the key question to raise in this respect is – even if physical users will not use LME warrants for metal sources – whether harm would result from a shortened queue threshold. The view expressed by some warehouse operators is that queues can arise from the cancellation of warrants in the ordinary course[82], and the shorter the threshold, the more danger that "innocent" warehouses are caught by such an accidental queue. However, it is

[81] Consistent with the LME's role as a market of last resort

[82] Or through "abusive" warrant cancellation per Section 6.5.1.1.4 – however, this should be addressed by the Board's discretionary powers as discussed in that Section

interesting to note that such views have been expressed primarily by operators of Affected Warehouses, while the issue would presumably be a concern to all warehouse operators. As such, there is a danger that Affected Warehouses are simply attempting to maintain some form of queue (and hence locked-in revenue stream) through this argument.

***Recommendation:*** reduce the queue threshold to 50 days. Indicate that the Board views this figure as a policy lever, which may be adjusted based on market development. In particular, as warrants become available in settlement from non-Affected Warehouses, and the Board observes physical users participating in the warrant market, then it will be more sympathetic towards a further downward adjustment to the queue threshold at Affected Warehouses.

##### 6.5.1.3.2. Rate of queue decay

The second core parameter is the rate of queue decay. This is expressed mathematically as the 0.5 factor in the calculation, and in broad terms means that the Rule would need to operate for two Business Days in order to remove on Calendar Day of queues. As with the queue threshold, consumers and operators of non-Affected Warehouses have, in general, called for the queue decay factor to be more aggressive.

Given that the core desired outcome of the Proposal is to reduce the proportion of premiums in the absolute price of metal, it is arguable that the queue decay factor is not the most relevant factor. Even if queues will take several years to disappear completely, the more important consideration is that the Rule has appeared to immediately reduce the appetite of Affected Warehouses to take-in more metal – anecdotal evidence suggests that these Warehouses are now targeting an “optimised” model, which will keep load-in equal to load-out and hence minimise incremental load-out obligations under the Rule. This has, in turn, reduced the premium bid by those Warehouses.

This effect is further enhanced by the fact that many of the Affected Warehouses have long term offtake agreements with producers or merchants, and so have to prioritise the metal arriving from these sources over bidding for “free metal” in the market. With this effect, the total demand by Affected Warehouses for free metal has materially dropped. As such, it would appear that the rate of queue decay is a less significant factor than the second- and third-order effects on premium bid in the market.

However, as with the queue threshold parameter, it does seem appropriate for the Board to maintain control over the queue decay factor. In particular, if the ongoing existence of queues were perceived to be causing ongoing market stress, then this could be addressed by flexing this parameter. Additionally, the parameter is useful as a sanction, both in respect of the market as a whole (such as to address perceived rent issues, per Section 6.5.1.1.8), and as a means of enforcement (such as to address unacceptable behaviour by an individual Warehouse per 6.5.1.1.5.

***Recommendation:*** reaffirm the 0.5 queue decay factor, but reserve this also as a policy lever, which the Board may adjust globally to address systemic issues, or apply on a per-Warehouse basis as a sanction under the Warehousing Agreement.

### 6.5.2. Alternatives to the Proposal

Both participants supporting the Proposal and those opposing it have also suggested a set of alternative (or complementary) approaches. These divide into two broad sets of action – the first addressing queues by compelling greater load-out, and the second addressing load-in.

#### 6.5.2.1. Routes to manage queues

##### 6.5.2.1.1. Quantitative load-out increase

A number of respondents have suggested that load-out rates should simply be increased, or effectively increased via a more subtle mechanism (such as a proportion of queue length or total stocks) or indeed a less subtle mechanism (demanding that all load-out requests be satisfied in a very short timeframe, thus effectively imposing an uncapped load-out obligation). However, as discussed at length by the Board, any meaningful increase is likely to be unachievable across the warehouse network, and hence risks forcing key storage locations out of the LME network, as well as being subject to action by warehouse operators claiming the requirements to be unreasonable. Furthermore, there is no evidence that a quantitative increase in load-out will achieve the desired effect – indeed, historical experience suggests that an increase in load-out rate incentivises greater warrant cancellation, which increases queues – and, to the extent that the Warehouse can increase load-in to compensate, then the net effect is simply for metal to circulate more quickly between warehouses.

It is also a valid concern that in the absence of such immediate re-load-in, a high load-out rate would result in a quicker dispersal of metal from warehouses into the marketplace. As such, there is the danger of releasing a larger quantity of historical overproduction into the global market, which would create an artificial short term surplus of metal. This would have the effect of driving-down prices in that short term, with consequent impact for both metal stockholders (who would be forced to mark inventories to market) and the broader supply-demand dynamic (given the danger of forcing cross-cycle profitable smelters out of business, with long term upward pressure on the market price as supply was taken out of the system).

***Recommendation:*** reiterate the Board's belief that such an approach is not in the best interests of the market.

#### 6.5.2.1.2. Per-shed load-out (including "virtual" load-out)

A number of respondents have suggested the approach (previously considered by the Board) that load-out requirements should apply on a per-shed basis[83]. As per previous analysis, this approach is not considered to be achievable from a practical standpoint, given the total lack of uniformity between sheds – a warehouse operator with multiple small sheds in a given location would be disadvantaged (in terms of being forced to observe a higher total load-out rate) in comparison to an operator with one large shed, even if total capacity were the same.

A more nuanced view of this argument suggests that an adjustment should be made for shed construction – e.g. by the concept of "virtual sheds", by which a warehouse's total square footage in a location should be sub-divided into virtual sheds of (e.g.) one thousand square metres. Each virtual shed would be subject to the current load-out requirements. However, this approach again suffers from material implementation difficulties, in particular:

i. Inconsistent stacking density. Square footage alone does not drive capacity – warehouse operators will stack to different heights, and with different gaps between metal bundles, due to local conditions such as floor strength, operational working areas etc. As such, any floor-area based approach would incentivise more dense and higher stacking of metals to create the lowest number of "virtual sheds" – which would ironically make the retrieval of any given warrant more difficult. Any more detailed analysis based on actual capacity would result in an intractable problem for the LME's Physical Operations Department in assessing and verifying warehouse operators' capacity calculations.

ii. The practice of storing both LME warranted and non-LME warranted metal in the same shed. Metal owners have indicated that such flexibility is important to them – in particular, they wish to be able to load in metal not on LME warrant, and then decide at a later stage to warrant it quickly based on market conditions – this is only possible if warehouse operators have flexibility to use storage space for both LME and non-LME metal[84]. In this case, the footprint of the LME storage area would change, and it is not clear how the "virtual warehouse" model would adapt.

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[83] Indeed, some responses have suggested that the LME should "confirm" this to be the case, believing it to be the correct current reading of the Warehouse Agreement. Per Section 2.3.4.1, this is not the case

[84] For the avoidance of doubt, this approach can be used to move non-warranted metal to warranted – but it cannot be used to move warranted metal to non-warranted, given that load-out requirements are only satisfied once the metal physically leaves the warehouse

But more fundamentally, it is believed that the Proposal does address the fundamental concern behind the "per-shed" proposal. Ultimately, the concern with multi-shed locations is that operators can easily load in metal (given that multiple work gangs can be assigned to different sheds to effect load-in), but are protected by the rules from needing to load out a commensurate quantity of metal across the estate of sheds. But this is the fundamental concept behind the Proposal – namely that warehouses with queues which are loading-in significant volumes (including those loading-in to multiple sheds in a given location) will need to compensate with an appropriate load-out volume. As such, it is not recommended to take on the very significant (perhaps impossible) logistical challenge of formulating a workable "virtual shed" proposal when the Proposal does address the key drivers of the situation.

***Recommendation****:* clarify that the rules do not currently apply per-shed, reiterate the operational difficulties of introducing such a measure, and explain that the Proposal targets multi-shed players through the linkage principle.

#### 6.5.2.1.3. Warrant fungibility

As set out more fully in Section 2.1.2, a key element of the LME's warehousing system is that warrants are not fungible – that is to say, each warrant represents a particular parcel of metal in a particular warehouse.

While this is a sensible system, due to the issues of warrant differentials explained at Section 2.1.8, it does create logistical complexity in metal load-out, which is cited by the warehouse companies as the key driver of their logistical difficulties in increasing load-out rates. A radical approach would be to make warrants fungible within a given warehouse, such that – on cancellation of a given warrant – the warehouse operator could choose to load out any parcel of the same metal.

Clearly the logistical issue associated with this proposal is the difference in value of warrants – a warrantholder loading-in a high-value warrant (in particular, a higher-quality brand) would be understandably unhappy if they were to cancel the same warrant and then receive a lower-quality brand in return.

The solution to this problem would be a "true-up" mechanism, whereby warrantholders withdrawing lower-quality metal than that on their warrant would be compensated with an additional cash payment, and warrantholders withdrawing higher-quality metal would be required to pay a premium. This creates, however, a number of problems:

i. The market would need to agree on a set of differential for various brands, which would be difficult to agree on a uniform basis. In particular, different applications place different values on the various brands, and it is not clear that the market for individual brands is sufficiently liquid that reliable transaction-based pricing could be derived.

ii. Metals owners looking to withdraw lower-quality warrants could be aggrieved if they were to receive higher-quality metal (and were compelled to pay the associated premium), and hence had to factor this into cashflow calculations.

iii. The warehouse would be expected to take on a "banking" function, including funding working capital. Consider a situation in which a large number of higher-quality warrants were deposited into a warehouse (and stacked at the back), and then a large number of lower-quality warrants were deposited thereafter (and stacked at the front). If the holders of the higher-quality warrants were all to cancel, and the warehouse loaded-out the more easily-accessible lower-quality warrants, a net cash payment would require to be made from the warehouses to the warrantholders. This would eventually be recouped when the higher-quality warrants were withdrawn (with an associated cash payment back to the warehouse), but it is not clear that warehouses would wish to carry out this function.

iv. Such a system would give rise to considerable dispute between warehouses and metal owners, given that it would be almost impossible to set prescriptive rules as to which metal should be loaded-out first. While this is arguably also the case for soft commodities and oil, the nature of the storage facilities (silos and tanks) means there is little scope for disagreement in practice.

It is interesting to note that warrant fungibility would have broader benefits for the LME, in that a set of commercial offerings (such as collateral management, warrant financing etc) could be offered natively in LMEsword. However, the issues above are likely to be prohibitive, and any offerings are likely to be delivered synthetically – i.e. by offering an organised warrant-exchange market, which would offer organised warrant trading (including the posting of bids, offers and transaction values for ex-cleared transactions in LMEsword). This would then provide an underpin for market facilities (such as warrant repo trades) which would otherwise require fungibility. However, these services would be discretionary for warrantholders wishing to take advantage of them – and a fully-fungible market would require the imposition of involuntary warrant exchange on all market participants, which is unlikely to be acceptable for the reasons cited above.

***Recommendation:*** articulate the difficulties around fungibility. However, commit to undertake business development research into warrant solutions – and, in particular, an organised warrant exchange market. This will align closely with the work around premium hedging solutions outlined in Section 6.4.1.2.

#### 6.5.2.1.4. Per-metal queues / warehouses

Particularly in the copper industry, a common request is for per-metal queues (or, in extreme cases, segregated metal warehouses). This appears to be driven by a concern that the structural factors which have led to the current state of the aluminium market (global overproduction leading to warehouses as a key source of spot metal demand) may arise as other metals (especially copper) move into global surplus over the coming years.

The LME has already moved partially in this direction through the separate load-out requirements for nickel and tin. However, these metals are characterised by lower levels of trading, storage and warrant cancellations compared to other LME contracts. As such, these metals are particularly vulnerable to being “trapped” behind larger-volume metals, with the potential for no nickel or tin to be loaded-out of a warehouse for a period of months if a larger aluminium destocking operation were taking place. This is a very different proposal to separate load-out for each metal – and especially aluminium, copper and zinc, all three of which are dominant in given warehouses.

The significant practical problem is that warehouses will become more discriminating in the metals they will accept – in particular, load-out requirements would be reduced by holding only one metal in each Warehouse. While this would achieve the aim of some copper users for copper-only warehouses, and would prevent (for example) aluminium queues driving a premium bid for copper, the net effect would be to reduce global warehouse choice for copper owners, and weaken the LME physical system, which does leverage a common set of warehouse infrastructure across its spectrum of metals contracts.

***Recommendation:*** restate the LME’s desire to address the queue problem holistically, thus obviating the need for a per-metal approach.

#### 6.5.2.1.5. Ban rent in queues

A number of respondents have raised the approach (again, considered by the Board as part of the pre-Consultation process) of preventing warehouses charging rents on metal sitting in queues. This would clearly have the effect of incentivising warehouses to load out more quickly, as they would be less keen to have zero-yielding metal occupying space in the warehouse, and could be expected to cause queues to shrink more quickly.

Of all of the proposed alternative routes, the concept of banning queues does appear to be one of the most rational and deliverable. However, it is important to remember that this approach has historically been considered by the LME Board, and rejected for the following reasons:

i. Concern over retroactive implementation, i.e. to metal which was loaded-in under the old rules. While it is clear that any change could be argued to have a degree of retroactive effect (in that metal loaded-in under the old rules may have an effect under the new Rule), the Proposal has been designed specifically to ensure that warehouse operators can choose not to load in any new metal, and their obligations will remain unchanged. A change banning charging of rents in queues would directly impact the expected (and, arguably, contracted) income stream which the warehouse operator expected to realise from metal already in its warehouse, and would be more likely to be legally challenged by operators.

ii. An alternative route would be to ban queue charging only in respect of new metal, i.e. metal loaded-in after the adoption of the Rule. However, this would have little effect on current queues, and is not consistent with the request made by Consultation respondents.

iii. It was unclear whether the banning of rents in queues could be construed as an imposition on the right of metal owners to enter into contracts on agreed terms with warehouse operators. This will be examined as part of the broader review of the scope of the LME's powers per Section 6.5.1.1.8.

iv. There also exists a concern that such an approach would give too much power to warrantholders. If this rule were implemented, a metal owner seeking free storage could buy warrants in a given warehouse, and then cancel all of those warrants with the aim of creating a queue. If the warehouse were unable to increase its load-out rate, then it would effectively be offering free storage to the metal owner.

v. Finally, there is concern that this approach may itself have unintended consequences – in particular, the possibility that warehouses may increase their FoT charge to compensate for the rent lost from queues

Given the status of this proposal as the only practical suggested alternative to the Proposal, the September Warehousing Committee was asked for their views on this approach. The general response was negative (as expected from Affected Warehouses, but also from non-Affected Warehouses). Even those who thought the concept had merit felt that it represented a "next stage" option, which should only be considered if the Rule fails to have its desired effect.

***Recommendation:*** Note the proposed course of action, and commit to fully investigate the feasibility of banning the charging of rent in queues. To extent that it could be practically implemented, reserve it as a policy option for the Board to deploy if required.

#### 6.5.2.1.6. Physical user queues

Several Consultation responses have suggested the concept of "physical user queues", under which a separate queue would operate for physical users, thus ensuring that metal destined for physical users would not be trapped behind metal being withdrawn on behalf of financial users.

While this is a notionally attractive concept, implementation would likely be extremely difficult. In particular, the classification of physical and financial users would need to be defined, and would raise significant questions in respect of e.g. merchants withdrawing metal on behalf of a physical user, but who may later choose to fulfil the customer's order from a different source (or giving the customer the option to cancel). Enforcement would hence be prohibitively difficult.

***Recommendation:*** reiterate the Board's commitment to addressing the queue issue for the benefit of all market users

### 6.5.2.2. Routes to manage load-in

#### 6.5.2.2.1. Ban incentives

A number of respondents have suggested that the warehousing problem could be addressed "at source" simply by banning incentives. This would take the "warehouse premium bid" out of the market.

However, it must be realised that this would not result immediately in end users being able to buy metal at LME flat[85]. The most likely economic result is that more metal would flow into financing deals, which would still offer merchants the ability to extract more than LME flat pricing for their free metal. End users would still be expected to pay a premium until the queues had been resolved over time. However, because of the short term effect of warehouse incentives in underpinning the premium pricing system, it is reasonable to expect that the rate of premium reduction would be more rapid under a warehousing model in which incentive payments were banned.

The issues with this approach are two-fold:

i. Legal restrictions. A ban on warehouse incentives may be interpreted as an unjustifiable interference with the rights of metal owners to achieve value for their metal. This will be considered as part of the competition law review referenced in Section 6.5.1.1.8.

ii. Commercial considerations. It is important to note that warehouses licensed by other exchange groups could offer incentives for metal to be loaded into their warehouses. If the LME were to ban the payment of incentives by LME-licensed warehouses, it is likely that the immediate reaction of metal owners would be to divert their free metal stocks to otherwise-licensed warehouses, and to then sell the associated metal on that exchange. This would represent a key competitive threat to the LME business model. A cap, rather than an outright ban, on LME incentives may lessen this concern – but still, competitors would be expected to attempt to take advantage of any change of this nature. It seems inequitable, from the perspective of the LME, that the LME should be guided down a route whereby it solved the market warehousing problem at the expense of its own long term business.

In connection with this point, a number of respondents have highlighted Clause 9.3.1 of the LME's Warehousing Agreement. This issue is more fully discussed at Section 2.3.1. The wording clearly does not signal an intent to ban incentives – rather, the issue is one of "unreasonable" incentives. The proposal in Section 0 is considered to be the best approach to providing a definition of the reasonableness of incentives, namely whether they are being offered, in the opinion of the Board, to effect a market distortion, such as the formation of a queue.

***Recommendation***: Restate the LME's current belief that a ban on incentives may not be consistent with competition law, but state that this situation will be clarified by the competition law review.

#### 6.5.2.2.2. Cap rents / FoTs

Section 6.5.1.1.8 fully addresses the issues in respect of rent and FoT caps in the context of potential rent increases as a response to implementation of the Rule. A large number of respondents have also identified rents and FoTs as a primary concern in the current market, which is broadly consistent with the analysis set forth in Section 5.2.2.2.3. However, the scope of any action is subject to what is permissible under competition law.

***Recommendation:*** Restate that regulation through capping rents or FoTs is being considered under the competition law review.

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[85] LME flat price would still relate to the warrants obtained in settlement – which would still be the warrants in large-queue locations

#### 6.5.2.2.3. Ban trader / warehouse linkages

Although a number of respondents have suggested the banning of such linkages, no evidence has been provided as to the supposed harm caused under the current structure, or any explanation as to why the current information barrier safeguards are considered to be inadequate.

In this context, Clause 1.5.2 of the Warehousing Agreement has been quoted, namely:

*A Warehouse may not deal directly or indirectly in Contracts, and shall observe such other requirements contained in any Exchange notice relating to the separation of Warehouses from Members and the maintenance of confidentiality in respect of price sensitive and customer confidential information.*

However, no evidence has been presented suggesting that warehouses are contravening these restrictions. It is certainly the case that metals users are being offered "straight-through" solutions by merchants and traders, under which both metals finance and metals storage are provided (with the metals storage often being provided by an affiliated company of the trader concerned). However, this is considered to be a natural and reasonable function of the market.

The scope of the LME's power to ban the ownership of warehouses by trading players is being considered in the competition law review set out in Section 6.5.1.1.8. However, per the above, it is unclear whether the LME would wish to impose such a ban were it able so to do. Additionally, it should be noted that broader market and regulatory forces appear to be driving some financial players to dispose of their physical metal activities without the intervention of the LME.

***Recommendation:*** Reiterate the LME's belief in its information barriers, and commit to publish an annual statement that third-party audit reports have been received as part of the information barrier policy, and identifying any general areas of concern, or noting the absence thereof. Additionally, work with external counsel to continually monitor the sufficiency of the information barrier rules.

## 7. CONCLUSIONS AND DECISION

On the basis of the analysis in Section 6, the recommendations of the Executive were presented to the LME Board on 25 October 2013. The Board has resolved that the LME take the following actions:

i. Queue threshold 50 days, and subject to ongoing LME Board review
ii. Decay factor maintained at 0.5, subject to ongoing LME Board review, and available as a sanction against abusive behaviour (including, subject to the views of counsel, short term systemic rent inflation)
iii. Load-In measurement in Calculation Periods on an aggregate, rather than daily, basis
iv. Ban on warranting identified as a specific enforcement response to Affected Warehouses failing to honour Incremental Load-Out Obligations
v. A new Clause (9.3.4) added to the Warehousing Agreement modified to reflect the LME's power to take action against Warehouses paying incentives to bring about a market distortion
vi. Clause 6.3.3 of the Warehousing Agreement to facilitate publication of per-Warehouse data (e.g. queues), with LME Physical Operations department to propose a reporting format to give greater information to the market on a delayed basis
vii. Clarification that re-warranted metal will not count towards load-in for the purposes of the calculation
viii. Explicit statement that the LME can disapply the Rule where the Executive considers such action to be in the best interest of the market, or necessary to avoid market disruption
ix. Clarification that the LME Physical Operations department will publish implementing guidance of the application of the Rule, and further that location-specific guidance may be published if logistical difficulties and disputes arise
x. Separate 1,500 tonne load-out rate for steel

Additionally, the following ancillary actions are proposed:

i. Review of the scope of the LME's powers under competition law to identify and define a set of further policy options for the Board, including the possibility of banning rent in queues
ii. The establishment of a Physical Market Committee, with the Chairman (or another appointed representative) also joining the Warehousing Committee and User Committee
iii. A comprehensive process of stakeholder engagement to communicate the results of the Consultation
iv. A full third-party assessment of the LME physical network, including logistical rate considerations, suitability of criteria and process for new good delivery locations, warehousing companies and sheds (including the advisory roles of Committees in both approval of applications and formulation of rules), and a review of the Warehousing Agreement
v. A project to introduce greater transparency through a commitment-of-traders type report
vi. A full business development analysis of premium discovery and hedging solutions, warrant transfer and synthetic fungibility solutions
vii. Publication of confirmation of receipt of independent audits into warehouse information barriers, identification of any general issues, and ongoing monitoring of the sufficiency of the information barrier provisions